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### SUGGESTED CHANGES IN THE CAVALRY DRILL REGULATIONS.

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#### GENERAL REMARKS.

##### *Assimilation.*

A CERTAIN degree of assimilation between the Infantry and Cavalry Drill Regulations should be considered necessary for the following reasons:

1. We have seen in the Spanish-American War, infantry regiments officered by cavalry officers, cavalry regiments officered by infantry officers, cavalry officers promoted to command of infantry brigades; cavalry, infantry and artillery officers acting as inspectors and critics of other arms, and acting as adjutants general to generals in command of other arms. We constantly find cavalry soldiers in infantry commands, and vice versa. In general it may be said that the knowledge of all arms of the service is beneficial to all officers. Without assimilation, officers of one arm are more liable to be ignorant of conditions in other arms. Formerly there was more assimilation than at present. Now we find

the cavalry "four" called in the infantry "squad," and the infantry "mass," called in the cavalry "close column."

2. The importance of the mounted infantry rôle for cavalry makes a certain amount of assimilation necessary.

#### MOBILITY.

It is of immense importance that the cavalry should be a mobile arm. It is the only arm which on the field of battle and in the face of the enemy may have to change formation quickly. The best drill book is that which permits the cavalry command to pass with ease and quickly from any formation to another. Thus it should be possible for a squadron to pass from any one of these formations directly to the other: Line, column of troops, mass, line of fours, line of platoon columns, echelon. A squadron should be able to deploy, dismounted or mounted, from any formation. Deployments dismounted, which are usually made by a cavalry command under fire, when the greatest haste is necessary to get the horses under cover, thus taking away the largest target they present, should be made in the simplest manner and by means of the shortest possible commands. This is not the case in the present drill regulations.

#### TRUMPET.

To maneuver large bodies of cavalry with precision and promptitude the use of the trumpet is indispensable, the ordinary voice being drowned by the noise of the horses. Therefore particular attention should be paid in the drill book to make it possible to communicate commands for the more important changes of formation by the trumpet. This is particularly necessary in the case of the regiment where the loudest voice does not reach over the length of two squadrons. With trumpet calls for "mass," "line of fours," "line of platoon columns," "echelon," "close columns," etc., it is very easy to adapt the spoken command so that it may be easily translated into a trumpet call.



## DOUBLE RANK.

The Drill Regulations might with advantage contain authority for use in the "charge," on special occasions, of the double rank. It is probable, for instance, that when weight is desired in order to drive home a charge, that the double rank can be used with advantage.

## DISMOUNTED FIGHTING.

Recent wars have revised the opinion of the best soldiers as to the value of shock action of the charge. Instead of the charge being the "most important cavalry movement," (Par. 448) the best opinion to day is that *the value of cavalry lies first in its mobility, next in its fire action, and next in its shock action.*

This conclusion follows from the following reasoning:

1. In shock action modern cavalry is about a match for the cavalry of a hundred years ago. Its superiority in mounts, arms, equipment or tactics is not so great as to remain uncontested.

2. On the other hand, the infantryman of to-day is vastly more formidable as a fighting man than the infantryman of a hundred years ago, for he shoots three times as far, four times as fast, and much more accurately. And when armed with a magazine gun his rifle is practically always loaded and ready. The infantryman of to day on the line of battle is equal to at least ten infantrymen of the days of Waterloo.

3. "Cavalry cannot charge unbroken infantry." This dictum, contested 100 years ago, is incontestible to-day. This results from the enormous superiority of the modern rifle. To-day the charging trooper, if he reaches the infantry line unhurt, finds there a foe alert and confident, and, thanks to his magazine gun, ready to exchange shot for saber blow. He cannot be ridden down.

4. Given time for dismounting and forming line, modern cavalry can convert itself into foot troops, equal man for man in fighting ability to the best infantry.

5. It follows that dismounted cavalry, well prepared, can whip mounted cavalry, and that cavalry will fight dismounted, not only in combats with infantry, but also, on many occasions, when fighting cavalry. But this will depend on having time sufficient to dismount and form line.\*

6. Cavalry in its work of exploration, is particularly exposed to ambush. This fact, as well as the necessity at times of employing dismounted fire against charging cavalry, makes it indispensable that cavalry should be trained to dismount and go into action with utmost promptitude. Further, it should be able to dismount and fight on foot from any formation. Cavalry caught in the act of dismounting and deploying by a charging enemy, is likely to be overthrown. The methods then of forming line dismounted of a troop, squadron, or regiment must be revised. The troop should be able to dismount and open fire in thirty seconds, and the squadron or regiment with similar rapidity. This calls for a revision of the methods prescribed in the present drill regulations.

7. The ability of cavalry to emulate infantry, as a dismounted force, combined with the wonderful mobility and ability to reach distant points without loss of time leads to an enlargement of the functions of cavalry, and to an increase in its importance. In these days of greatly extended battle lines, cavalry, operating mounted or dismounted on the flanks or rear of the enemy, will have opportunities to do him infinite damage. The battle of the future will not be won so much by direct assault as by flank attack. The extraordinary extension of the modern battlefield makes necessary wide turning movements, involving long marches, exe-

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\*It may be laid down as an axiom, that to charge against an equal body of cavalry skilled in fighting on foot, invites disaster when the enemy has over sixty seconds notice of the attack. It is easy to demonstrate that this amount of warning will give the enemy thirty seconds for dismounting and thirty seconds for aimed fire. At the extended gallop, about 450 yards is covered in thirty seconds, and 900 yards in sixty seconds. It would seem, therefore, that in the attack on cavalry riflemen, the charge should not be discovered by the enemy until within close range, say 600 yards. This calls for ambush, surprise, the use of cover, and the training of horses and men in charging over short distances starting from the halt or walk.

cuted with utmost rapidity, and for this, great bodies of cavalry, taught properly to fight on foot, are best adapted.

8. The effective use of cavalry in war is largely a question of terrain. In the days when only shock action was employed and cavalry could approach without danger to within 300 yards of infantry, open country was essential for the best use of cavalry. Now, when shock action cannot be employed unless from concealment, and fire action is the principal rôle of cavalry, cover is necessary, and treeless plains are no longer "cavalry country." No drill book can properly serve its purpose which does not devote part of its pages to the question of terrain as it affects the employment of cavalry.

9. Conforming to recent observations in warfare and the discovery that, even at long range, a squad or platoon furnishes a target for artillery, while the individual skirmisher furnishes none, the normal formation in extended order, that is, the formation usually to be taken in action as soon as deployed, should be the formation "as skirmishers," line of platoons (not squads) to be used only on special occasions when not exposed to the fire of the enemy and when, on account of cover, this formation will not attract attention. In other words, the formation "as skirmishers" not affording a target, and being more or less invisible, up to a certain point, enables a closer approach to the enemy's position before fire is opened. The "squad" formation should be abandoned. A subdivision of less size than the "platoon" dismounted is too small for effective work.

10. Since the necessity for the employment of cavalry in extended order, mounted, is infrequent, the space given in the present Drill Regulations to extended order, mounted, is misleading and causes much time wasted by experienced officers in teaching a formation that, practically, can never be used.

11. It is proposed that extended order dismounted be made the basis of instruction and be taught first to cavalry troops; and that the trooper in extended order dismounted be called a "skirmisher," and in extended order mounted a "forager."

12. Since cavalry troops are liable to be attacked by dismounted fire while mounted, in any formation, and since changes of formation under fire are liable to be attended with much loss, it is proposed that the drill book provide for dismounting to "fight on foot" from any formation by the simple command "*Skirmishers, guide right (left or center), MARCH,*" the command "*Skirmishers*" being the signal for dismounting and forming threes dismounted opposite the horses, and the command "*March*" the signal for deploying from the base designated by "*guide right, (left or center).*"

13. It is further proposed that all deployments be made at "double time," that all skirmishers when at a rest, shall lie down or otherwise place themselves out of sight of the enemy.

#### PRELIMINARY INSTRUCTION.

The drill book should lay down a precise course for the instruction of the recruit. It should give if possible, the number of hours per day to be devoted to mounted drill and the number of hours for dismounted drill. The recruit's course should be of at least eight weeks, drilling six days per week of five hours drill per day, three of which should be mounted drill, which gives 120 hours of mounted drill as compared with 200 hours of mounted instruction of cadets, the total course formerly had at West Point. On account of the lack of such a course, precisely laid down, it is believed much valuable time was wasted in preparing volunteers for cavalry service during the Spanish-American War. Even in the regular army much valuable time is wasted during the instruction of the recruit in exercises which are almost purely spectacular.

#### SQUADRON DRILL.

It is proposed to greatly simplify the commands and means used at squadron drill, making it possible to give almost all commands on the trumpet, and also making it possible to play or deploy from any formation to any other, the methods of plying and deploying being made much

more uniform than in the present regulations. Thus it is proposed to change directly from any one of the following formations to any other :

Line,  
Line of fours,  
Line of platoon column,  
Mass,  
Close column,  
Double column of fours,  
Double column of platoons,  
Echelon,  
Column of fours,  
Column of platoons.

These changes of formation to be executed by the simple commands :

1. *Form (line, line of fours, line of platoon columns, mass, close column, etc., etc.)*, 2. *Guide right, (left or center)*, 3. **MARCH.**

The command to be given either by voice or trumpet, or both.

The direction of the march of the subdivisions in plying and deploying to be as a rule parallel with and perpendicular to the line (not oblique).

(The oblique ployment or deployment rarely saves much time, and often makes the movement complicated.)

Commands and means used in troop drill which can be adapted to the maneuvering of the squadron are retained. Thus all changes of direction in a column formation are effected by the command :

1. *Column right (or left)*, 2. **MARCH.** And all changes of front in line, line of platoons, mass or echelon, by the command *Right (or left) turn*, **MARCH.**

#### REGIMENTAL DRILL.

The chapter devoted to the regiment in the present Drill Regulations needs many changes, as I found during two seasons at Fort Riley, Kan., during which, for the first time an opportunity to use this drill was had. Generally speak-

ing, it would be desirable if the commands used in drilling the squadron could be used with the regiment when the same movement is performed. This is not always the case, and leads to confusion. Many desirable changes of formation are not now possible without exceeding authority given in the Drill Regulations. The whole chapter devoted to regimental drill should be rewritten.

This drill should be simplified in commands and means as is proposed for the squadron drill, and the commands should be made possible to deliver on the trumpet.

#### STREET FORMATIONS.

A chapter should be devoted to the proper disposition and handling of troops marching in crowded cities, and in opposing rioters and disorderly crowds. It is usually found by those of long experience in street marching, that the use of the trumpet is indispensable on account of the noise. Trumpet calls should be adapted to such changes of formation as are most frequently used. In handling crowds and in repressing riots, cavalry is the most useful arm, since it can put down disorder by using the saber, and not having, like the infantry, to resort to firearms. In addition, crowds can be broken up by the mere movement of mounted troops without using the saber. Occasions for the employment of cavalry to restore order are liable to recur with increasing frequency as our country becomes more densely populated.

#### REVIEW OF LARGE COMMANDS.

Latitude should be given in the formation of commands of less than a division so as to adapt such a command to the ground on which the review is to take place, especially when it includes different arms of the service. All orders, if possible, should be given by the trumpet, so as to enable movements to be executed simultaneously.

Depending upon the circumstances, the size of the force and the shape of the review ground, it should be possible to review a command—

In line,

In line of columns,

In line of masses,

In double lines, double lines of column or double lines of masses, or

In close column, or

In three lines.

The review is a most valuable ceremony. It is an exercise in forming a brigade or division in line of battle promptly and without confusion. It enables the soldier to contrast the precision of marching, discipline, equipment and neatness of various organizations, and thus enhances a healthy rivalry. It gives soldiers and civilians and foes an impression of power and efficiency for war which can not otherwise be had. Properly utilized, it is a quick and comprehensive inspection of a command. To accomplish properly such purposes it must be executed promptly, without dragging and without the confusion which is generally caused by failure to hear commands.

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#### CHANGES IN DETAIL.

Following are some of the more important changes recommended in the school of the soldier, school of the trooper, school of the squadron, and extended order. These changes are merely *sketched*; general principles being given to which it is proposed the drill book should conform.

Par. 26, Elementary Instruction: The period of instruction of the recruit will be eight weeks, or forty-eight working days.

The recruit should receive at least 120 hours of mounted instruction, eighty hours of dismounted instruction before being required to do duty with the troop. He should drill mounted, at least three hours; dismounted two hours per day.

For the first three weeks mounted instruction should be on the quietest horses, and, as a rule, on the riding track. Particular attention will be paid to individual horsemanship,

including the position of the trooper at all gaits, the use of the reins and legs in changing gaits, in turning and in passing. Great care will be taken in the earlier lessons to give the recruit confidence and prevent him from becoming timid. There will be frequent rests.

The dismounted drill during this period will be in the school of the soldier, with and without arms, including the setting up exercises, marchings, manual of the carbine, saber and pistol.

After the first three weeks, and until the end of the recruit instruction, the recruit will ride his own horse, and the instruction will be more advanced, to include, besides riding on the track, the school of the squad, saber exercise, and a small amount of riding without saddles, this latter being limited to not more than half an hour every day.

In the dismounted drills during this second period the first two weeks' course will be continued to include, in addition at other than drill hours, sighting, aiming and position drill and gallery practice.

Instructors of recruits will, at such hours as are available, instruct their squads in the care of arms, clothing and equipments, the customs of the service, the Articles of War, the regulations, guard duty, the nomenclature of the horse, saddle, carbine, pistol, etc.

Par. 45. Setting up exercises: To be assimilated to those of the infantry.

Par. 68. Manual of the Rifle: Same.

Par. 218. Saber exercises: To be revised as modified by Provisional Regulations 1907, in the form finally approved.

Par. 250. Fencing exercise: Same.

Par. 179. Manual of the Pistol, and Par. 185, Pistol Firings. To conform to Manual adopted and to Firing Regulations.

Par. 289. To pack the saddle: To conform to recent orders.

Par. 308. Mounted exercises: The mounted instruction of the recruit during the first three weeks should be with a saddle in order that he may gain confidence and in order that the position and use of the reins, hands and legs,



and the general position of the recruit may be perfected by the instructor, before the recruit takes up the more difficult riding bareback.

It is exceedingly important that the recruit should gain entire confidence before bareback riding is commenced. There are many men who, if they receive a bad fall at the beginning, are ruined as riders.

Such mounted exercises as interfere with the proper instruction of the horse in his obedience to hand and leg, should be sparingly indulged in, in order that his training under the saddle may not be injured. Such exercises are jumping on and off horses while in motion, riding face to the rear, riding double and wrestling on horseback.

The horse will not be thrown unless it is necessary to enforce his obedience. A horse should never be taught to lie down while his rider is on his back.

Bareback exercises not specifically authorized by the regulations are prohibited. In these are included Cossack riding, Roman races, and standing or kneeling on horse's back.

Par. 278. Conform to the new bridle.

Par. 293. Conform to the new method of holding reins.

Par. 370. The wrestle: Omit as being ruinous to the training of the horse.

Par. 372. Omit for the same reason.

Pars. 398 and 399. Running at heads: Should give authority for the "tournament" or running at heads at high gaits with saber or revolver on straight track, this being a desirable form of instruction.

Pars. 519, 520 and 521. Omit as being unnecessary.

#### EXTENDED ORDER.

Movements in extended order, mounted, are executed by the same commands and means as when dismounted, conforming to the principles described for dismounted drills, and using the word "forager" for "skirmisher." Deployment and assembly, mounted, will habitually be executed at a trot, and dismounted at double time.

The trooper in extended order dismounted is called a "skirmisher" and in extended order mounted a "forager." The skirmishers of each four are Nos. 1, 2 and 3; No. 4 is "horseholder." Skirmishers when not in movement lie down, or otherwise place themselves out of sight of the enemy.

#### THE PLATOON IN EXTENDED ORDER.

Par. 498. (A). Being in column of fours, to fight on foot:

1. *Skirmishers*, 2. *Guide right (or left)*, 3. *MARCH*.

At the first command the skirmishers of each four dismount, link horses and form facing to the front in their normal order, three yards to the right of their horses.

(Note: Skirmishers on dismounting from column of fours habitually form on the right flank. *This rule is general.*)

At the command "March" (which in emergencies may be given before the execution of the first command is completed) skirmishers deploy on leading four in the direction and with the guide indicated.

(B). Being in line, to fight on foot:

1. *Skirmishers*, 2. *Guide right (left or center)*, 3. *MARCH*.

At first command skirmishers dismount, form rank, link horses and form three yards in front of their horses. At the command "March" skirmishers deploy on the base four.

(C). Being in line or column of fours, to dismount and assemble the skirmishers.

1. *Skirmishers*, 2. *Assemble*, 3. *Guide right (left or center)*, 4. *MARCH*.

At the second command skirmishers assemble three yards in front of the column or line, on base four.

#### TROOP IN EXTENDED ORDER.

(D). The troop dismounts to fight on foot and deploys to the front as skirmishers from line, from column of fours, from line of platoons in column of fours, from column of platoons, or from echelon, by commands and means as explained in (A) and (B); the deployment being made when in line of platoons, in column of fours, column of platoons, or

in echelon, on the four indicated by the command, *Guide right (left or center)*.

(E). The troop dismounts to fight on foot and then deploys to the front in line of platoons, from line, from column of fours, from line of platoons in column of fours, from column of platoons, or from echelon, by command as follows:

1. *Skirmishers*, 2. *Line of platoons*, 3. *Guide right (left or center)*, 4. MARCH.

Platoons move to their places in column of fours.

#### SQUADRON IN EXTENDED ORDER.

The squadron dismounts to fight on foot and deploys as skirmishers or in line of platoons to the front from line, from line of fours, from mass, from line of platoon columns, from echelon, from double column of fours, by commands and means as explained for the platoon and troop. The deployment is made with utmost promptness. Unless otherwise indicated each troop other than the base troop will remain mounted at first command and then proceed at a trot to its position on the skirmish line and deploy as skirmishers. (General rule.)

Preferably commands in extended order should be given by the trumpet. Trumpet call introduced "line of platoons."

#### THE SQUADRON.

Par. 697-784. After extended order the more important use of the trumpet is in the drill of the squadron and regiment. The trumpet calls introduced into this drill are: 1. "*Form line*" (first bar of tattoo suggested; 2. "*Form mass*" (third bar of tattoo); 3. "*Form line of platoon columns*" (first bar of reveille); 4. "*Form echelon*" (third bar of reveille); 5. "*Form close column*" (third bar of the general).

Being in line, line of fours, mass, line of platoon columns, echelon, to change direction to the right or to change front to the right, the command is given 1. *Right turn (or right half turn)*, 2. MARCH.

Being in any column formation to change direction to

the right the command is given *Column right* (or *column half right*), MARCH.

Being in line, to form mass:

1. *Form mass*, 2. *Guide right* (or *left*), 3. MARCH.

The right troop executes *right forward fours right* and moves forward thirty yards plus the depth of the troop and is halted.

Each of the other troops executes *right forward fours right*, and when clear of the line executes "*Fours right, March; Guide left.*" When nearly opposite its place in the new formation each troop executes "*Fours left, March,*" and moves forward to the line.

If executed at an increased gait, each troop, other than the base troop, in column of fours executes "*right forward fours right,*" and is conducted in column of fours by the shortest line to the rear of its position and thence up to the line.

Mass can be formed on the center troop by the command

1. *Form mass*, 2. *Guide center*, 3. MARCH. The troops break to the front into column of fours and are conducted to their position.

Being in mass, to form line:

1. *Form line*, 2. *Guide right* (left or center), 3. MARCH.

Executed by reverse means. Base troop executes *left front into line, march*. Each of the troops, other than the base troop, executes *fours left, march*, and when nearly opposite their position in line, *fours right, march* and *left front into line, march*. If executed at an increased gait the same principles apply, the troops gaining their intervals by marching toward the flank of the squadron.

To form line on the center troop: 1. *Form line*, 2. *Guide center*, 3. MARCH.

In *ploying* at an increased gait troops move by the shortest line. In *deploying* at an increased gait troops will move in a direction parallel to the line. *This rule is general.*

In *deploying* at an increased gait, the leading element will halt after advancing thirty yards. *This rule is general.*

Being in line, to form line of platoon columns:

1. *Form line of platoon columns*, 2. *Guide right* (left or

center), 3. MARCH. Executed as in forming mass, the troops breaking to the front in column of platoons and closing their intervals on the base troop by moving parallel to the line. If at an increased gait, by moving to the rear of their positions, in column of platoons, by the shortest line. (Commands of commander second troop: "1. *Right by platoons*, 2. MARCH, 3. *Fours right*, 4. MARCH, 5. *Guide left*, 6. *Fours left*, 7. MARCH, 8. *Troop*, 9. HALT") (In case of increased gait: "*Right by platoons, Trot, MARCH; Guide right; Column half right, MARCH; Column half left, MARCH; Walk, MARCH.*")

Being in line of platoon columns, to form line:

1. *Form line*, 2. *Guide right (left or center)*, 3. MARCH.

Executed as in forming line from mass. Command of commander of second troop: "*Fours left, (trot), MARCH; Fours right, MARCH; Left front into line, MARCH.*"

To form close column from line:

1. *Form close column*, 2. *Guide right (or left)*, 3. MARCH.

First troop stands fast. Each of the other troops wheels by *fours right*, changes direction to the right, then to the left, and when the rear four is about to enter the column is wheeled by *fours* to the left, halted and dressed.

If at an increased gait, the first troop moves forward. The other troops move by the right flank, then by the left flank and close distance on the troop in front.

Deployment from close column into line is executed by reverse means, the first troop standing fast.

Being in line, to form double column: *Form double column of fours*, MARCH. Executed as in Par. 773.

*Form double column of platoons*, MARCH. Executed in the same manner by breaking into column of platoons on the center.

Being in mass, to form close column to the right or left: *Fours right (or left)*, MARCH, *Squadron*, HALT.

Mass to the right from close column is formed by reverse means.

Being in mass, to form close column to the front: *Right turn*, MARCH, *Fours left*, MARCH, *Squadron*, HALT.

Mass to the front in close column is formed by reversed means.

Being in mass, to form line of platoon columns: *Form line of platoon columns, Guide right, MARCH.* Executed similarly to forming line from line of platoon columns.

The first troop moves forward, forms into column of platoons and halts at thirty yards.

The commands for second troop: *Fours left, MARCH, Fours right, MARCH, Form line, guide right, MARCH.*

Mass is formed from line of platoon columns by reverse means.

Being in mass to form double column of fours: *Form double column of fours, MARCH.*

The center troops move forward, followed by the flank troops. Intervals are corrected toward the guide.

Being in double column of fours, to form mass: *Form mass, MARCH, Guide center.* Executed by reverse means.

Being in mass to form echelon: *Form echelon, Guide right (left or center), MARCH.* Executed as in forming line except that first troop continues to move forward, the other troops deploying and gaining their intervals and distances from the troop next toward the base. Commands of second troop: *Fours left, MARCH, Guide right; Fours right, MARCH; Form line, Guide right, MARCH.*

Being in echelon, to form mass: Executed as from line.

Being in line of platoon columns, to form line of fours: *Form line of fours, Guide right, (left or center), MARCH.* Base troop moves to the front in column of fours thirty yards. Other troops move by the left flank and gain interval, then by the right flank, break into column of fours on the side of the guide and are halted on the line.

Being in line of platoon columns, to form echelon: *Form echelon, Guide right (left or center), MARCH.*

The base troop executes left front into line and marches to the front. The other troops move to the left flank, gain required distance, move by the right flank and form left front into line on first platoon and continue the march.

Line of platoon columns is formed from echelon on the leading troop as from line.

Being in line of platoon columns to form double column of fours: *Form double column of fours, MARCH Guide right.*

Center troops break to the front in column of fours on the side toward the center. Other troops in each wing follow center troops in column of fours. Intervals are closed toward the guide.

Being in line of fours, the squadron is formed into mass, line of platoon columns, echelon, double column and close column, by similar commands and means.

Being in close column, mass may be formed to the right or left by the command *Fours right*, MARCH. Mass to the front may be formed by the command *Fours right* (or *left*), MARCH; *Left* (or *right*) *turn*, MARCH.

Line, line of fours, line of platoon columns, double column of fours, double column of platoons, may then be formed by appropriate commands, as explained above.

Echelon from close column and close column from echelon are executed in the same manner as when line is formed from close column or the reverse. Close column is formed from double column by first forming mass.

Double column of platoons: Being in line of platoon columns, to form double column of platoons: *Form double column of platoons*, MARCH. Executed as in forming double column of fours from line.

Note: This formation is introduced for the following reasons:

It furnishes a formation of exceptional advantage on the field of battle when fighting cavalry, on account of the facility with which it is possible to face to a flank, preserving the same formation. The column can also deploy quickly in any direction into other formations, valuable in the attack.

To face to the right or left, preserving the same formation. *Troops column right*, MARCH.

To deploy to the front in line: *Right and left front into line*, MARCH.

Into line of platoon columns: *Form line of platoon columns*, *Guide center*, MARCH.

Into Mass: *Form mass*, *Guide center*, MARCH.

Into line of fours: *Form line of fours*, *Guide center*, MARCH.

Into double column of fours: *Form double column of fours, center forward, MARCH.*

Into echelon of platoon columns: *Form echelon of platoon columns, Guide center, MARCH.*

Into two lines: *Form two lines, Guide center, MARCH.*

In echelon of lines: *Form echelon, Guide center, MARCH.*  
The double column of platoons may deploy to and on the right or left.

Into line: *Platoons right turn. Left troops, on right into line, MARCH.*

Into line of platoon columns: *Right into line of platoon columns, MARCH.*

Into double line of troops in line of platoons in columns of fours: *Fours right, MARCH.*

In double line: *Platoons right turn, MARCH.* In echelon on center: *Platoons right, MARCH. Form echelon, Guide center, MARCH.*



## THE BENÉT MERCIÉ OR HOTCHKISS PORTABLE MACHINE GUN.

BY SECOND LIEUTENANT HARRY L. HODGES, FIRST CAVALRY.

THIS gun, designed primarily for use with cavalry, has been developed with especial reference to that arm. It is the invention of Mr. Benét (a brother of Colonel Benét of the Ordnance Department) and of M. Mercié. Being built on the same general principle as are all Hotchkiss guns, it is automatic through gas pressure and not on account of recoil.

Having passed very successfully the machine gun tests required at the Springfield Arsenal, this machine gun was sent to Major George W. McIver, Commandant of the School of Musketry at the Presidio of Monterey, California, for the purpose of determining its tactical value.

By Major McIver it was brought to Atascadero for the exercises recorded hereafter and to be used in conjunction with the other arms in the maneuver work.

So far as the mechanics or the mechanical workings of the gun, the Springfield tests are very thorough, comprising in brief, tests for accuracy with fixed aim or oscillating aim, for accuracy with normal fire or fire of extreme rapidity, for speed in replacing broken parts, for the effect of excessive or insufficient powder pressure in the cartridge, of rust, of sand, and finally an endurance test, of which the board says, concerning the Hotchkiss gun: "It was decided that no more firing should be done under the fourth series test 13, as the gun had passed a satisfactory test and, after firing 15,038 rounds, appeared to be firing as well as at the beginning. Only one spare part had been used, and that was an ex-

tractor that had previously been fired 9,798 rounds." The mechanism had been fired:

With barrel A .....	1,290 rounds
With barrel B .....	11,230 rounds
With barrel C .....	13,160 rounds
With barrel D .....	300 rounds
	<hr/> 25,980 rounds

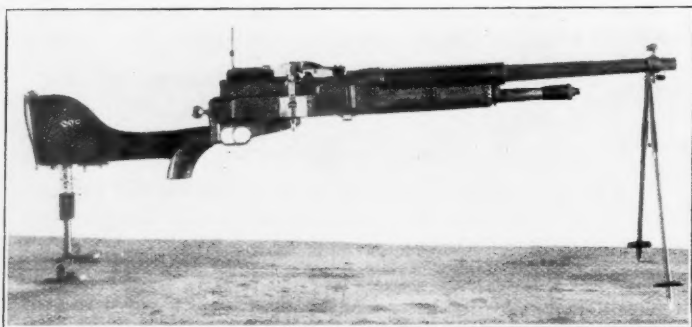


PLATE 1.

In appearance the gun is very much like our magazine rifle only somewhat larger (Plate 1). The feed strips, or clips, hold thirty cartridges, the cartridges being held by projections from the surface of the clip (Plate 2). The clip itself is of brass and is easily reloaded. Two men can re-

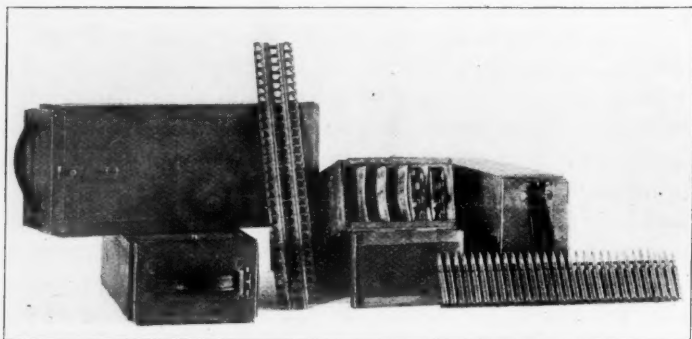


PLATE 2.

load 1,200 rounds in forty five minutes. These clips are carried in boxes, ten clips to a box, the whole weighing nearly thirty pounds.

The trial pack (Plate 3) is provisional and may admit of improvement, but the illustration shows how easily there can be packed on one mule two guns (one on each side) each weighing thirty pounds, 1,200 rounds of ammunition

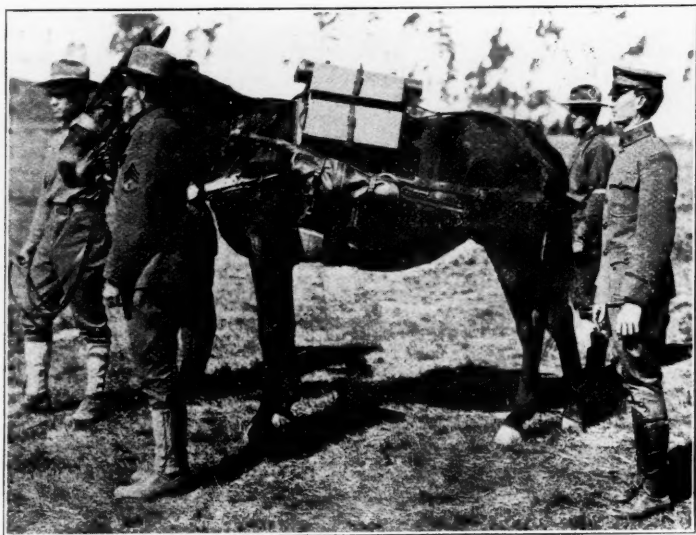


PLATE 3.

weighing 120 pounds, and two extra barrels, the whole making a total weight of less than 200 pounds. The gun can also be carried on the cavalry horse with the rider, for it can be separated into barrel and stock, each weighing fifteen pounds, and half attached to each side of the saddle.

The gun is served by two men (Plate 4). One man can carry the gun and three hundred rounds of ammunition, while the other carries six hundred rounds.

This latter number can be doubled, if necessity requires, by attaching pairs of the boxes together by straps.

In action, one man does the firing (Plate 5) while the other loads the gun and assists in making large changes of

direction when necessitated by the movement of the target.

The gun can be used by one man, carrying a smaller number of rounds of ammunition.

In firing, single action, semi-automatic action or automatic action may be employed, allowing the piece to be used for one shot, for a dozen more or less, or for thirty, without reloading.



PLATE 4.

The gun can be concealed as easily as a rifle (Plate 6).

Mechanically the Hotchkiss is probably the simplest of any machine gun made. The gun consists of twenty-six pieces, composed of a total of 114 parts. The gun was made at first the weight of the Rexar, 16.6 pounds, but it was found that the durability of the gun was doubled by the in-

crease of metal at various places. The gun now weighs thirty pounds.

Captain J. H. Parker, commanding the provisional machine gun company at Atascadero, gives it as his opinion



PLATE 5

that the Benét-Mercié machine gun has the most perfect mechanism of any machine gun yet invented.

The exercises given the Hotchkiss gun at Atascadero were the following:



PLATE 6.

*Exercise I.*—A demonstration of the failure of our present system of target practice properly to instruct men for field firing. This was the firing of a platoon of thirty-three men at targets appearing and disappearing in various positions

and at various ranges. These targets were drop targets, bobbing targets and moving targets on sleds. This demonstration served its purpose of showing some of the weakness of our present system of target practice. Although not intended for the purpose, this demonstration served as a basis for the comparison of machine gun and infantry fire referred to in the following exercise.

*Exercise II.*—The Hotchkiss gun was run through the same course. This served only to show that for firing at targets in skirmish line, bobbing targets in skirmish line, etc., a machine gun is not as effective, without an extravagant expenditure of ammunition, as thirty-three riflemen; this at ranges less than 1,000 yards. Taking into consideration the comparative scores made, seven per cent. of hits by the platoon, five-and-a-half per cent. by the machine gun, and the fact that the machine gun operator was an expert and knew the ranges, while the platoon was an ordinary one, the fire of the machine gun may be said to be equal to about twenty skirmishers, rather than to twenty-five as the proportion would show it.

This served very clearly to demonstrate the portability of the gun, the fact that it could be easily carried forward with the firing line without subjecting the operator to greater danger than an ordinary rifleman would undergo. The gun can be taken by a mounted man across the pommel of his saddle, giving opportunities for unexpected action beyond that of any tripod machine gun.

*Exercise III.*—Was the firing machine gun of 1,080 rounds continuously at groups of targets in different directions. A change of barrels was made after 600 rounds, which change was effected in forty seconds. The firing was accomplished in a sum total of twenty-seven minutes, with about ten minutes of actual firing. The percentage of hits, in the skirmish line target used, was about twenty per cent.

The recoil from this gun is very slight, much less than that of the army rifle.

This test served to demonstrate the facility with which various targets could be picked up, the change from target

to target while firing being made in an average of about twenty-three seconds.

*Exercise IV.*—Was the firing of thirty shots at eight kneeling figures at a distance of about 300 yards, the string being fired in less than one minute, with the result of fourteen hits.

This served to demonstrate the accuracy of the piece in its semi-automatic action.

*Exercise V.*—Was the firing of the gun from a sitting position, resting the legs of the fork on ammunition boxes. The test was satisfactory.

*Exercise VI.*—Was the rapid firing of the gun at a bare space on a hillside having a slope of about thirty degrees, at a range of 2,000 yards. Ninety shots were fired in fourteen seconds. As far as could be judged by glasses, the dispersion covered a space of about sixty by eighty yards.

This served to demonstrate the ability of the gun to fire very rapidly and with effect on large targets at long ranges. The test was satisfactory but not exhaustive.

*Exercise VII.*—A target of 110 irregularly mixed prone, kneeling and standing figures, was placed at a distance of 1,000 yards. The targets were in five rows of about twenty-one targets to a row. From front to rear the target was about forty yards.

This was a comparative but not exhaustive test between the Maxim and the Hotchkiss guns, each firing for a space of two minutes, the gun being at a ready when the command to fire was given.

The results were, for the Maxim 180 hits (number of targets hit not taken) out of 266 shots, or 40.6 per cent.; for the Hotchkiss, 162 hits on 65 targets out of 370 shots, or 43.8 per cent.

The actual firing time of the Maxim was about one minute; the other minute was employed in getting and keeping the gun on the target by the mechanical aids for traversing and elevating.

This test served to demonstrate that for firing at large targets at about 1,000 yards the Hotchkiss was equally as

efficient as the Maxim. Had the test been for five minutes, perhaps the Maxim would have made the better showing.

The quicker a machine gun can be brought on a target and held for effective fire, the more useful it will be for the "fire of opportunity." Two minutes will doubtless be the limit before disintegration of a large living target will render fire aimed at one point useless.

When one witnesses the test of the two guns, the question appeals to the mind, whether mechanical aids should not be done away with when as good results can be obtained by human skill, for the mechanical aids need maintenance, which is difficult in the field; and jams due to elevating, depressing or traversing are eliminated. By "human skill" is meant the skill of a marksman, for really more manual dexterity is required in keeping a tripod gun on the target, for the pointer has, in order to keep up a fire on one place, to elevate or depress, to traverse, and to fire, three separate things to be done with two hands. The single bearing of a tripod gun is very liable to work loose, and the gun, though clamped, will swing off the target.

During the tests at Atascadero the gun was fired 3,500 rounds with but one jam, which was remedied in twelve seconds by pulling back the cocking lever. At Monterey 7,500 rounds were fired without mishap. The tests were undergone at Springfield without stop due to mishap of the gun for more than a minute.

The question of *indirect fire* with the machine gun is one which has received some attention. To obtain any good and consistent results with such fire, the Hotchkiss would require a mount.

There is also a question whether, for ranges beyond 1,500 yards, a mount is not necessary. Data is not yet available to fully determine the point.

The results obtained with this gun, without tripod, at long ranges, would seem to justify its use in the cavalry; whether infantry will need a tripod for their gun in a long-sustained combat is a question with which the cavalry has little to do.

The chief use of a machine gun with cavalry is to supply



a certain amount of infantry fire without dismounting the men necessary to obtain that fire with rifles.

Cavalry combats should be short, else due use is not made of their mobility. The cavalry should endeavor to approach its objective in such a way that it should be able to start its action, except on an open plain, at a shorter distance than 1,000 yards, more or less, otherwise infantry could do the work more effectively. Trench says: "As dismounted cavalry cannot be advantageously employed in long-sustained combats, whatever is to be done should be done quickly."

Indirect firing with machine guns will be used chiefly within permanent or semi permanent positions, where no cavalry will ordinarily be found. The chief use of machine guns is undoubtedly the "fire of opportunity," the opportunity is fleeting; indirect fire requires some time in this development, meantime the target disappears. In order to take advantage of opportunities direct fire ordinarily will be used.

For the foregoing reasons and on account of the greater portability, mobility and greater amount of ammunition that can be carried, it would seem that the cavalry machine guns should be without tripods or should have a very light, detachable one to take advantage of exceptional cases in the use of the cavalry gun.

Accepting this gun, tactically the same as the Rexar gun, as the cavalry gun, what should be the composition of a machine gun unit?

The following is a suggested organization:  
For each section:

- 1 non-commissioned officer,
- 1 gun, mule or horse,
- 2 guns,
- 1,200 rounds,
- 2 gun pointers,
- 2 horses,
- 300 rounds each horse,
- 1 horseholder,
- 1 horse,
- 300 rounds

2 assistant pointers,  
2 horses,  
300 rounds each horse,  
1 pack mule or horse,  
2,400 rounds,

Six men, six horses, two mules or horses, 2,550 rounds per gun.

To insure 10,000 rounds being available for each gun will require for each two guns a pack train of six mules or a four-mule wagon to carry baggage and 15,900 rounds of ammunition.

In the present state of the development of machine guns, whether the development of the tactics of the arm will later demand a company (troop) organization or not, the company organization is very probably the best for the development and improvement of the gun, its tactics, and for the training of men capable of operating and repairing the gun. Major McIver has had some opportunity to observe the company organization with the present gun, and believes that such is the proper organization.

## HORSEBREEDING IN FOREIGN COUNTRIES— REMOUNTS.

BY VETERINARIAN COLEMAN NOCKOLDS, FIRST CAVALRY.

THE foreign governments recognize the fact that they can learn something from their neighbors; this is shown by the encouragement they lend to horse shows of an international character, such as those which have been held in recent years at Antwerp, Hamburg, Amsterdam, Vienna, Brussels, Paris, and this year in London. These exhibitions afford opportunities which do not occur otherwise of comparing the results of various systems and methods of breeding. Is there not something that we can learn and make use of from these exhibits, the objects of which have taken so many years to accomplish, and not waste our time by experimenting blindly along lines that were thrashed out thoroughly by other nations many long years ago?

A great opportunity of seeing the stamp of horse each government of Europe is striving to produce for military purposes occurred in September 1900, in the International Horse Show held at Paris, when the French government spent upwards of \$250,000.00 in prizes and erecting suitable buildings, etc., for the show, which lasted only one week. There were collected horses of numerous and varied strains from all parts of France, from Germany, Hungary, Austria, Russia and Turkey. So excellent an opportunity for comparing a large number of representative examples of different breeds is unlikely to recur soon, and a wonderful object lesson on these lines with the opportunities for information has gone.

The army horses of various breeds and nations were shown mounted at the Paris exhibition. To demonstrate

the results of the practice of breeding for the various classes of work horses are required to perform, a selection of sizeable stallions and mares was first paraded, and these were followed into the ring by a troop of heavy cavalry mounted on the produce of these mares and stallions. Then were shown stallions and mares of medium size, and with them a detachment of cavalry mounted on their progeny. After these came stallions and mares more highly bred, followed again by a troop of light cavalry mounted on their progeny. This was undoubtedly the most interesting and instructive exhibition of breeds of military horses that has ever occurred. The International Horse Show that took place this year in England is still fresh in the minds of all persons interested in such proceedings.

It is worth while to briefly glance at the systems of horse breeding prevailing in some of the chief continental countries, noting that the object of each country is to foster and encourage the breeding of classes most useful to the people of the country, and the special inducements offered for the type of army horses needed.

#### FRANCE.

At the conclusion of the wars which called forth all her strength in the earlier years of the nineteenth century, the want of horses in France engaged the serious attention of the government. Commissioners were appointed to travel through the country and ascertain what horses of certain old and esteemed breeds could be procured to restock the Royal studs; and measures were adopted to encourage private breeders.

The *Sporting Magazine* of 1820 contains translations of a minute presented by the Minister of the Interior to Louis XVIII, recommending a number of gentlemen for gold and silver medals in recognition of the work they had done and were still doing to promote the breeding of horses. Some details are given of the studs owned by these gentlemen, and from these it would appear that Arabs and Spanish stallions found place in several private studs.

From the same publication we learn that for some years

prior to 1820 foreign breeders had ceased to buy only thoroughbreds in England to improve their stocks, and "great numbers of English half-bred mares have been collected and sent abroad."

"Cecil," in an article on racing in the *Sporting Magazine* of 1851, says horses for general use were then very scarce in England, while the French government was encouraging their production, more especially that of powerful animals for military purposes.

France now, for stud purposes, is divided into six districts, which contain twenty-two government studs for stallions. From these studs 3,038 stallions are distributed among 689 local covering stations for public service.

The report of the Inspector-General of horse breeding operations in 1899 gives the following list of stallions serving that year; these are divided into three classes:

Thoroughbreds—	
Thoroughbreds .....	262
Arabs .....	105
Anglo-Arabs* .....	260
Not Thoroughbreds—	
Southern half-breds* .....	164
Norman and Vendéans .....	1,384
Qualified trotters* .....	261
English hackneys .....	71
English hackneys cross-bred* .....	78
Draught—	
Percherons .....	278
Boulonnais .....	61
Ardennes .....	54
Bretons .....	51

Since the year 1899 the government has increased the number, and this year the total number of stallions is 3,450.

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\*The Anglo-Arab is a cross between the English thoroughbred and the Arab.

The Southern (du Midi) horses are bred in the Tarbes district, and have a long strain of Arab blood.

Qualified trotters, certified to have trotted one kilometer in one minute and forty seconds. These horses have been graded up from hackney sires which were imported from England forty or fifty years ago.

English hackneys cross-bred are a cross between English hackneys and hunter mares imported from England

From the table showing how the stallions are distributed among these twenty-two studs, we may select two important examples, the stud at Tarbes, in the Pyrenean region, where light horses are chiefly bred, and Le Pin, in Normandy, where heavier saddle horses, carriage and light draught, and a proportion of heavy draught horses are produced.

At Tarbes in 1899, the horses available for distribution among covering stations, were: Thoroughbreds: English, 34; Arabs, 27; Anglo Arabs, 48; total, 109. Half-breds: Southern horses, 37; Normans and Vendéans, 7; Norfolks, 4; total, 48. In all, 157 stallions.

At Le Pin, the following were available for distribution: Thoroughbreds: English, 22; Arab, 1; Anglo Arab, 11; total, 34. Half-breds: Southern horses, 3; Normans and Vendéans, 97; qualified trotters, 55; Norfolks, 20; total, 175. Draught sires: Percherons, 67. In all 276, stallions.

The largest stud in France is that at St. Lo, in Normandy, whence 365 stallions were distributed in 1899; but it is less representative than the two of which details have been given, consisting of 281 Norman and Vendean stallions, with fifty-nine qualified trotters and twenty-five English thoroughbreds.

The following illustrates the system in vogue at one small covering station; there are hundreds similar. At Lasparre, in the Medoc, the following stallions stood for three months during the season in 1900:

1. Monbran; thoroughbred. Fee for half-bred mares, \$1.24; for thoroughbreds, \$4.00.
2. Balsamin; thoroughbred. Anglo-Arab (*i. e.*, by a thoroughbred sire; dam by pure Arab). Fee, \$1.25.
3. Troupaie; half-bred (by thoroughbred Anglo-Arab; dam by half-bred Norman sire). Fee, \$1.25.
4. Rip Rap; half-bred trotter (by thoroughbred; dam by half-bred Norman sire). Fee, \$1.75.
5. Risque a Tout; half-bred trotter. Fee, \$1.25.
6. Piedetal; half-bred Norman. Fee, \$1.25.
7. Quna; half-bred Norman. Fee, \$1.25.

All the half bred trotters and half-bred Norman stallions have hackney blood in their veins.

Lesparre is in a district in which horse-breeding is by no means a prominent industry. It is one of the chief vine-growing regions of France. The celebrated vineyard Chateau Lafite is only seven miles from Lesparre, yet the owner of a mare may choose from seven stallions, representing five different strains, paying the small fees specified above.

The supply of stallions is adjusted to meet the demand. The foregoing list shows us that experience has taught the stud authorities to make provisions for service by half-breds of five times as many mares as are sent to the thoroughbred or Anglo-Arab. There are no heavy draught stallions at Lesparre; the reason is to be found in the fact that oxen are very generally used for cart and plough in this district, and heavy draught horses therefore are not bred. If we turn to the Finistere Department of Brittany, where post horses are bred, we shall find the same principle in operation; there they stand stallions of a stamp calculated to get the sturdy "blocky" horses for which the district is noted, and which have been graded up from imported hackney sires.

In France, during the year 1899, there were 2,940 stallions belonging to the State in actual work; these covered 170,155 mares; the fees paid for service amounted to 1,275,250 francs, or about \$255,050.00. Looking more closely at the returns of service, we find that the thoroughbred class (English, Arabian and Anglo-Arab), 579 stallions performed 26,144 services, or about forty-five each; the half-bred class 110,411 services, or over fifty-seven each; and the draught sires, 33,600, or over seventy seven each. The thoroughbred stallions were employed more especially for crossing purposes, 21,743 mares other than thoroughbreds having been sent to them.

The stallions at each local covering station are changed frequently.

Besides these 3,038 stallions belonging to the state, there are a large number in the hands of private owners. Any stallion whose services are available to the public must be licensed by government as belonging to one of three classes:

1. "Approved" stallions, which are considered good enough to improve the breed of horses. These are divided

into two classes: Sires which earn over \$20.00 per service form the first class; these receive no bounty from the state. The second class consists of sires for whose services \$20.00 or less is charged by the owner; these receive an annual premium of from \$60.00 to \$400.00 a year. In 1899 there were 1,334 "approved" stallions, viz:

Thoroughbreds .....	303
Not thoroughbreds .....	485
Draught .....	546
	<hr/> 1,334

2. "Authorized" stallions, which receive no premium, but whose progeny are eligible to compete at shows subsidized by the State.

They were:

Thoroughbreds .....	24
Not thoroughbreds .....	34
Draught .....	162
	<hr/> 220

3. "Accepted" stallions, which have nothing to recommend them but a certificate of freedom from roaring and intermittent ophthalmia.

In 1899, 7,631 stallions were brought before the committees for acceptance for service during the season of 1900, and 7,467 were passed.

There is only one government stud farm where sixty mares are kept. This is at Pompadour.

English thoroughbred, Arab and Anglo-Arab horses only are bred at Pompadour, and the farm is only a small factor in the general scheme of breeding. Improvement is sought principally through the provision of good stallions.

Bounties are given for brood mares, filly foals, and as prizes for horse-breaking at public competitions. These measures encourage owners to retain possession of the best breeding stock for the benefit of the nation, and stimulate endeavor among people to achieve skill as horse masters.

In every district in France shows are held at which the young stock are exhibited and are awarded prizes. The two-year-olds are led and the three-year-olds are shown mounted.



The judges are officials connected with the neighboring studs and one or two representatives of the head office of State Haras in Paris.

About \$1,350,000.00 of public money is spent annually in France in horse-breeding. The expenditure includes the maintenance of the stallion studs and depots, the purchase of horses, premiums to private stallion owners, and prizes given at races, local shows, etc.

#### GERMANY.

The stallion for public service belonging to the state, which in 1896-7\* numbered about 2,600, are distributed among seventeen "Rural Studs" which in their turn, supply stallions to 899 covering stations.

The stallions at the end of 1895 were classed as follows:

Class 1. Light riding horses, 419, including 94 English thoroughbreds, 4 Arabs and 2 Anglo-Arabs.

Class 2. Heavy riding or light draught horses, 1,153.

Class 3. Heavy draught horses, 681; Percherons, 2; Belgian and Ardennes horses (draught), 86; Clydesdale and Shires, 71; French and Norman farm horses, 13; German farm horses, 161.

The principal object of the German Government Stud Department is to provide remounts for the army. Of the stallions mentioned above 1,989 were purchased, only 598 having been bred on the State farm.

In the year 1884 there were 775 covering stallions in Germany, with 2,152 stallions; in 1895 the number of covering stallions had increased to 899, with 2,587 stallions. The covering fee charged is generally under \$5.00.

Of the remounts supplied to the German army in 1895 about 6,000 were for cavalry; of these, 588 were got by thoroughbred sires.

Privately owned stallions must be approved by local committees (which also license bulls and boars) before their services may be hired.

\*Information of a later date than 1896-7, concerning the German studs has proved unobtainable.

During the fiscal year of 1895-96, 2,308 licenses were applied for, and of these 1,488 were granted; 812 were for light riding or draught horses, 563 for farm and cart stallions, and 113 for crosses between the two. Much is done to promote private enterprise.

There is a special fund provided by the government from which private horse breeding associations can obtain loans free of interest. Such loans must be repaid within six years. At the end of 1895, sixty-one associations had taken advantage of this fund, the total loaned being \$26,375.00.

Brood mares may be purchased on very easy conditions from the government supply depot at Kalkreuth, the principal stipulation being that the buyer shall have the mare covered by a good half-bred stallion belonging to an Imperial Stud, and shall offer the produce when three years old to the army buyer as a remount. If, however, the owner wishes to employ the produce for stud purposes he is not bound to put it on the remount market. Pecuniary inducements are also offered to breeders to retain good brood mares and raise young stock.

For the convenience of breeders, the War Office agents arrange markets at suitable times and places, where young animals on sale as remounts for the army may be inspected and bought; *no middlemen are employed.*

Horses are purchased by the military buyers at three years old. The average price paid is about \$190.00, but purchasing officers are, or were a few years since, instructed to deal liberally with the breeders. It was the rule not to try and beat down the price asked for a horse if it were reasonable; and giving a small breeder more than he demanded was not unknown if the animal appeared more valuable than the owner supposed it to be. The young horses thus purchased are kept at the remount depots for about fifteen months, and are then distributed among regiments. Before this distribution takes place, breeders may select any mares that promise to make particularly good brood mares, paying a little more than the average price for the animals so chosen. Few, however, take advantage of this privilege.

In addition to the seventeen "Rural Studs" there are

four state breeding studs with about 660 mares and 30 stallions. Of these Graditz and Trakehnen are the more important. The stallions bred at these establishments are sent to the Rural Studs if they can fulfill the standard of merit required by the committee which is assembled to examine them. Those that fail to satisfy the committee are sold by public auction.

The largest of these studs is that at Trakehnen in east Prussia. The estate covers 10,300 acres; the breeding stock comprises 4 thoroughbred and 12 half-bred stallions, with over 400 mares.

The Trakehnen horse, as it may be called, for it breeds true to type, is generally a long, low black horse, about 16 hands high, with the best of limbs and a beautiful head, "a trifle too long in the back, but a valuable stamp of horse; they are extremely quiet and tractable."

By the distribution of illustrated pamphlets the German government endeavors to instruct breeders in the best methods of managing stock, and also concerning the stamps of horse required for the army.

A typical artillery and heavy weight saddle horse is described as follows, for the guidance of breeders: "Height at 3 years, 15.1 to 15.2½; height when full grown, 15.2¾ to 16.1¾. Activity, speed, freedom of action and endurance. The breast need not be as broad in the saddle as the artillery horse. The fetlock should not be too short; while, on the other hand, if too long it bends too low and causes the heavy weight carried to produce fatigue on a long march. A good back for the saddle is as necessary in the cavalry horse as a good shoulder for the collar in the artillery horse."

The "general requirements" in horses for the German army are thus detailed:

1. Small blood-like head, neck well set on.
2. Strong, well-placed legs with big joints.
3. Well arched ribs and good sloping shoulders.
4. Well-formed strong back, not too long, well-coupled and high-lying kidneys.
5. Strong hocks, free from disease.
6. Round sound hoofs with healthy frogs.

7. Sound constitution and good digestion.
8. Free, energetic action.

The net cost of Germany's horse-breeding establishments is about \$950,000.00 a year.

#### HUNGARY.

The stud machinery in Hungary is elaborate and extensive. There are four state breeding farms where stallions are bred for public service. The stallions, which in 1896 numbered 2,838, are sent out to eighteen central depots, and from these upwards of 964 local covering stations are annually supplied. The service fees range from 32 cents to \$3.10. Large breeders may hire stallions from the central depots for the season.

Hungarian methods are admirably described by Professor Wrightson, in his "Report on the Agriculture of the Austro-Hungarian Empire," published in Vol. II (Second Series) of the *Journal of the Royal Agricultural Society* (1874); and by Mr. J. Collins, Principal Veterinary Surgeon to the British Forces in 1880, whose reports on the studs and breeds of horses in Hungary was, by the permission of the Secretary of State for War, reproduced in the *Journal of the Royal Agricultural Society*. Much the same methods exist at the present time.

The breeding of horses in Hungary is one of the most popular branches of rural economy, and is carried on not only by the government, but by most of the great landed proprietors with wonderful results.

Hungarian breeders take issue with many English breeders, who look upon the thoroughbred as essential to the supply of half-bred saddle horses. They think it quite practicable to raise a distinct race of saddle horses, possessed of the necessary fixity of character.

They still look to England for their supplies of thoroughbreds and Norfolk trotters; but they have in recent years succeeded in their object of establishing breeds of their own.

The Crown studs in Hungary are conducted upon a very large scale.

At Mezohégyes there were upwards of 650 brood-mares. Colonel Horváth, the officer in charge of the latter stud, shows how the Hungarians have succeeded in establishing a fixed breed of saddle horses, as follows: "The race of horses is throughout half-bred. We have had two studs of half-blood Arabian mares since the years 1825 and 1827; two studs of English mares (*Furiosa* and *Abugress*) since the years 1841 and 1842; also the family of *Nonius*, obtained from France in 1815; two studs of the ancient blood of *Lippieza*, which is a mixture of Spanish and Arabian blood, since the year 1807; and lately we have begun to form a stud of Norfolk blood, with stallions of that race and mares of different indigenous families."

The Colonel gives the numbers of mares of the several strains he names.

At the time he directed the stud there were 136 half-blood Arabs, 148 English, 113 mares of various strains from *Lippieza*, 220 *Nonius* or Anglo Norman mares, and 33 of the Norfolk mares, as the beginning of a stud of this breed. The stallions used included English thoroughbred, pure Arabs or half-breeds belonging to the families named.

Colonel Horváth states that the principle kept in view in breeding suitable stallions is very simple. It is the gradual improvement of a family by the introduction of nobler and higher blood, while at the same time the type of the family is retained. Where more blood is wanted fullblood horses are used according to the previous breeding of the particular family. The produce, when strong enough, is served once more by a thoroughbred, and then the breeder resorts again to a sire of the original strain of the family. It is in fact, a system of breeding from half bred stock, with an occasional use of thoroughbreds when there is a tendency to coarseness.

When asked the question, "Do you hope to establish fixed or permanent half-bred races which may be bred truly *"inter se?"*" Colonel Horváth replied: "The families of *Nonius*, *Majestosa* (*Lippieza* blood), *Gidran* and *Schagya* (Arab blood) are already constant. *Furiosa* and *Abugress* (English thor-

oughbred) and Norfolk breeds will require ten or twelve years more of careful breeding."

The Nonius strain derives its name from a famous sire of that name which was procured from France in the year 1815. The original Nonius was got by an English horse named "Orion" out of a mare of the Anglo-Norman breed, which breed was largely built up on Norfolk trotter blood.

Among the Hungarian exhibit at the Paris International Show were very models of what the fifteen-stone hunter should be, and some perfectly shaped carriage horses; and living proof was furnished of the sound practical wisdom which directs stud operations in Hungary.

The best were those of Nonius (Norfolk trotter) and North Star (thoroughbred) strains.

Reviewing his experiences during his visit to Hungary, Professor Wrightson says: "The result of much observation was to show me that the best horses in Hungary are descended from English stock."

A number of stallions foaled every year at the Royal studs and about 200 yearlings, which are annually purchased at an average price of about \$117.00 are set apart and reared with the view of use as public stallions. At the age of three years these are inspected and classified; about one-half the number are rejected as stallions and cut; the best, to the proportion of about twenty per cent., are sold as "communal stallions;" death accounts for the remaining four or five per cent. of the total.

The communal stallions are sold to the chiefs of the agricultural divisions, known as communes, at prices varying from \$150.00 to \$250.00, payable in four annual installments. Each commune undertakes to maintain its stallion at its own expense and in a suitable manner, the proper discharge of its obligations being the care of one or more government officials. The stallion is available for service within the limits of the commune at a maximum fee of a little less than \$1.00.

In parts of Hungary the method of service is to lead the stallion; in other parts the stallion is turned loose with mares, which may not number more than eighty.

Should the horse not be kept in a proper manner, he is, after repeated cautions, liable to be withdrawn from the commune at the end of the third year, and the commune forfeits the installments of the price paid. If the stallion dies or fails as a stock getter during the first three years, the authorities replace him by another. At the end of the third year he becomes the property of the commune, which is then able to dispose of him as it pleases. Many communes change their stallion every third year, depending upon circumstances.

With the one exception of there being imported Clydesdales on the estate of the Archduke Albrecht, the only English horses seen in Hungary are thoroughbreds and Norfolk trotters.

The estimated cost for the Hungarian Horse-Breeding Department for the year 1897 amounted to \$1,166,665.

#### AUSTRIA.

In the year 1876 a committee of inquiry on horse breeding was appointed by the Austrian government, and the result of its investigations was the division of the whole country into five districts, with a view of providing stallions suited to the varying requirements of each.

From the central depots in each of the five districts over 2,000 stallions are distributed among 522 stations, each station accommodating from one to ten stallions. There are no fewer than thirteen different breeds of horse in use, and care is taken that each station shall receive a stallion or stallions suited to local requirements. In fulfillment of the scheme suggested by this committee, good local breeds are retained pure, approved stallions of each being used for public service; in districts where the local breed have degenerated or stand in need of improvement, the stallions are carefully chosen to raise the general standard.

Thus, thoroughbreds of English descent, but bred in the country, are used on strong mares to supply remounts. In other districts roadsters, Clydesdale and Suffolk stallions are sent to be mated with mares of a class to throw heavy artillery riding and draught horses.

In the mountainous regions, where small, and hardy horses are required for draught and pack work, every endeavor is made to keep the local breed pure. The Pinzauer horses are highly spoken of for such work in hilly districts; they are very strong and hardy, and have good action; the lighter class trot quite well enough to perform heavy carriage work over bad ground. Their color is peculiar—white or light, "splashed" with dark spots.

In 1897 the Austrian state included, among other stallions, 94 English thoroughbreds, 766 English half-breds, and 208 hackneys.

Special inducements are held out to private breeders to keep brood-mares, and prizes for young stock and mares are freely offered. The regulations concerning privately owned stallions vary in various provinces of Austria, but encouraged if suitable for stud purposes.

Such horses are licensed; the horse in some parts must be inspected once a month during the covering season. Anyone who uses an unlicensed stallion to cover mares other than his own, whether for fee or gratis; or knowingly allows a mare to be covered by an unlicensed stallion; or suffers entire colts of one year old or more to pasture with mares of any age, is liable to fine equal to \$2.00 or thereabouts.

In addition to the five central depots, there are two state breeding studs. These are maintained for the purpose of producing stallions for public service; one is at Radautz and the other at Piber. At Radautz there are over a thousand animals, including about 250 brood mares.

Pains are taken to keep all the young stock at Radautz in condition; they are kept as much as possible in the open air, and are exercised for at least three hours daily by mounted drovers, who are assisted by dogs.

During the summer, from May to September, the young horses are driven to the hills or on to distant wild ground, and left to their own devices. At the age of three the young horses are taken in hand and broken, and those stallions which are considered suitable for service are got into condition and distributed among the central depots in their fourth year.



There are, in addition to those two breeding studs, establishments at Kladrub and Lippieza, where carriage horses are bred. The Kladruber horses are very large and showy animals, with great action; they are descended from the Spanish and Italian stock, but careful mating for generations has greatly increased their size, which is now often as much as 17 hands 2 inches. These horses are chiefly used in the Royal carriages on state occasions.

The Lippizienne horses have marked character of their own, having been obtained from Spanish, Italian, and Arab stock, carefully crossed.

They are long-bodied, short-legged horses with good quarters, legs and feet, and stand from 15 to 16 hands. They are very handsome, hardy and fast.

The covering fees in Austria range from 41 cents to \$4.00, for ordinary stallions; in some poor districts mares are covered by the state horses free of charge.

Her horse breeding operations cost Austria \$700,000.00 a year.

#### ITALY.

For stud purposes the country is divided into seven districts, which include 377 covering stations, each of which accommodates one or more stallions. Only ten of these stations receive four or more sires, the large majority receiving one or two. In 1895 there were 582 government stallions distributed among the covering stations; this total comprised 72 English thoroughbreds, 78 Arabs, 6 Anglo-Arabs, 396 hackneys and half-breds, 29 heavy draught horses and 1 American trotter.

With the object of ensuring uniformity, it is considered advisable to keep the same stallion at one covering station as long as possible.

With the exception of one or two thoroughbreds, whose services are only requisitioned by owners of racing stock, the service fees are low, though higher than most Continental countries. In 1895, 18,846 mares were served by government horses at a fee of about \$2.00 each; 1,021 at \$5.00 each, and 258 at \$7.00 each. The War Department buys remounts

at three and four years old, paying, on the average \$120.00 for three-year-olds, and \$160.00 for four-year-olds. The horses so purchased are sent to one of the remount depots, and are issued to regiments when four years and six months old perfectly unbroken.

About 3,500 young horses are annually purchased by the remount committees.

Greater stringency in examination of late years has produced a considerable decrease in the number of privately owned stallions performing public service. There were 645 private stallions standing for public service in 1895.

Colonel Needham (of the British service), in his report on stud work in Italy, says that the great defect of the Italian horse is want of size and substance, but he admits that the cavalry horse shows great endurance when carrying heavy weights and performing long marches.

Italy spends about \$150,000.00 net on horsebreeding annually.

#### RUSSIA.

In no European country is more attention devoted to the breeding of horses than in Russia. The oldest Imperial stud now in existence is that at Derkoul'sk, established in 1750; but, without reviewing the history of the Russian horse-breeding department, it may be said that it has been an object of solicitude to successive sovereigns for the last 400 years. Ivan III., who reigned during the last forty years of the fifteenth century, established the first government stud of which there is a record, near Moscow, and compelled all great landed proprietors to establish breeding studs.

The government maintains about 1,100 stallions at fifteen depots; from these depots the horses are distributed among covering stations all over the country, wherever horse-breeding has place among local industries. As in other countries, the number of stallions at each covering station varies in accordance with the needs of the district. They vary in number from two to nine, but four is the usual complement.

The fees charged for service range from 76 cents to \$11.45, in ratio with the merits of the stallion selected; each

mare is allowed three leaps, if necessary, but not more; the covering season lasts from the 3d of February to the 18th of June. The stallions are put to service at five years old, and in their first season cover forty mares, but no more; when six years old they are permitted to cover sixty mares, and in very exceptional cases as many as ninety. Stallions which are old, but still capable of service, are given away on condition that the recipient uses them for stud work.

Since the year 1862 shows for all horses bred in Russia have been held annually; about \$112,500.00 are given annually in prizes, and honorary awards are also distributed. The twenty-six turf societies in Russia receive among them \$70,000.00 a year to be given in stakes. Horse fairs are encouraged; there are 460 of these in various parts of the country, at which some 300,000 horses change hands.

Independent of the fifteen stallion depots there are four government breeding studs. There is one at Khrenovoi, which was purchased in 1845 from the daughter of Count Alexis Orloff, the descendant of the noble who founded the famous breed of trotting horses known by his name.

This stud consists of saddle-horses (17 stallions and 100 brood mares, trotters (13 stallions and 100 brood mares), and English thoroughbreds, (5 stallions and 45 brood mares). It is also celebrated for the Rostophschine breed of trotters, which was founded by Count Rostophschine, a contemporary of the founder of the Orloff breed. The best mares here are those got by Arab stallions from English mares. Khrenovoi is also one of the stallion depots.

The Belevodsk stud embraces four separate establishments:

1. Derkoulsk, referred to above as the oldest breeding stable in Russia, is given up to breeding of carriage horses, and the stud consists of about 22 stallions and 150 mares.
2. Streletz, devoted to a stud of Arabs, about 20 stallions and 150 mares. The Streletz stud has given its name to a breed of horses which differs only in its superior size from the Eastern bred Arab; the Streletz horses were among the exhibits that attracted most attention in the Paris show.
3. Limarveo, where Arabs only are bred.

4. Novo Alexandrov, for half-breds (about 20 stallions and 150 mares). All these four studs are known collectively as the Belevodsk stud.

The third stud at Janow, a comparatively small one for half-bred horses; and the fourth at Orenbourg (12 stallions and about 85 mares) is for breeding only Kirghiz or steppe horses.

For more than a century the Russian government and private owners have imported thoroughbreds from England.

The English thoroughbred stallion "Grey Diomed" and four mares formed the foundation stock of the Golowkowa stud in 1794. "Traveller" and "Orelus," son of "Eclipse," were imported in 1799, "Doncaster" in 1810, "Cerberus" in 1812, "Memnon," winner of the St. Leger of 1825, a few years later. In 1833 a special mission was sent to England to buy stock; the stallions "Birmingham," "Middleton" and "Admiral" were purchased, and numerous mares, among them "Lalla Rookh," "Executrice," "Tweedlewings" (by "Touchstone"), "Metal" (by "Glaucus"), and "Marchioness."

The Imperial studs are directed with great judgment; the utmost care is exercised in the choice of forage; all horses are exercised regularly every day, and young horses when three and a half years old are tested for strength and staying power according to their class and breeding. No mare is given up to breeding until she is five years old and fully developed.

Attached to each government stud farm is a school of horsemanship, where breeders receive instructions in the principles of the industry, and where riding is taught. At Khriovoi is a special school where trainers, jockeys, huntsmen and coachmen are taught the best methods of training young horses.

Private enterprise is encouraged every way, and very many of the Russian nobility maintain large breeding studs on their estates.

At Slawuta, Prince Sangusko has, or had, a stud of Eastern horses, which, Mons. Salvi observes, show to what a pitch of perfection the typical Arab may be brought when wisely mated, well nourished, and reared under favorable

conditions; "it has the height, bone, and spirit of an Irish horse, and yet is the Bedouin horse, preserving all its Eastern characteristics, but bigger and stronger." Many private owners devote their attention entirely to the Anglo-Arab. At least one, however, makes a specialty of carriage horses, which he has succeeded in bringing to a high standard, using Mecklenburg stallions upon Eastern mares.

The twelve regiments of horse guards and Eighth (reserve) Cavalry Brigade, are horsed from the Imperial studs, as the steppe-bred animals are not powerful enough to carry the men.

About 7,200 horses are required annually for the Russian cavalry of the line.

There are seven "brigade stations" to which the remount officers send the young horses which they buy from the breeders; these horses have run wild on the steppes until caught for sale; their entire education is carried on by regimental breakers. They cost on the average about \$76.00, but by the time they are fit to take their places in the ranks they have cost about \$185.00 each. Dragoon remounts must not be less than 14.2 $\frac{5}{8}$  in height, and are bought from the age of three off to rising five.

Captain H. Hayes says of a batch of 800 remounts which had been sent in by the buyers a few days before:

"As these dragoon remounts average about 15.1 $\frac{1}{2}$ , they are somewhat small, and to English eyes would probably appear at first sight rather light; but closer inspection shows that they have plenty of bone, are compactly built, and have no superfluous lumber to carry. They are with few exceptions, entirely free from cart blood, and consequently if their forelegs in some cases seem a bit deficient below the knee, the back tendons run more or less parallel to the cannon bone, and we find no coarseness about the fetlocks, which is evidence of inability to stand work under the saddle. These Russian remounts have, as a rule, short backs, muscular loins, good feet, fairly small heads, and are well ribbed up.

"They are particularly good across the loins, which is a point that receives much attention from Russian breeders.

"Formerly the horses of the Don, from which country the best remounts are obtained, were generally 'back at the knees,' 'calf-kneed;' but this defect has been almost entirely eliminated by careful crossing.

"The members of the selection committee, which pass or reject the animals brought up by the buyers of remounts, are specially critical as regards the quality of the pasterns. On the whole they have very good forelegs. Their shoulders are inclined to be short; but their worst point is undoubtedly their hocks, which in many instances are weak, too much bent (sickle-hocked) or inclined to curb. These remounts, especially those which come from the country of the Don, have a strong infusion of Arab blood, with a dash of the thoroughbred. They are essentially saddle horses bred for cavalry purposes; the Russian horses are reared under conditions of privation and hard work to get their living, and are consequently more useful as slaves and campaigners than they appear to be."

Four of the fifteen Imperial studs are situated in the horse-breeding region of the Don.

#### TURKEY.

The Ottoman government possesses four important studs, all of which are situated in Asia Minor and are organized on lines similar to the great Hungarian establishments, Mezoheyges, Babolna, etc., and which are under the control of the Minister for War.

The Tchifteler stud, situated in the province of Brousse, on the Sea of Marmora, was established in the year 1832; the lands, covering 29,600 acres, consists of somewhat varied pasture of vast prairies watered by three streams. After the Crimean War a thousand mares were received at Tchifteler from the English and French armies, and these, like the animals already at the farm, were allowed to range at liberty until the year 1886, when nearly the whole stock perished from drought.

In 1886 three hundred Hungarian mares of inferior and unsuitable strain were sent to this stud; these were kept

under cover, but the native mares and their broods continued to roam at large. As stable accommodation was built, however, the latter were housed, as well as fifty brood mares which had been purchased in Russia.

Since 1892 Arab blood has been introduced, and only once since this step was taken has the Tchifteler stud been able to furnish annually over a hundred good and efficient remounts. The progress made has been continuous, and this year the total number available for the army will be three hundred.

The Arab stud consists of fifty-five stallions of pure blood and eleven half-bred stallions got by Arabs out of native mares. In addition to these there are ninety-one native stallions and six Normans, which were bought in 1900, thirteen Hungarian and eleven Russian stallions. There were two years ago 660 brood mares and fillies, of which thirty-five were Russian, ninety three Hungarian, and the remainder native bred.

The officer in charge of the stud is a colonel, who has under him a military staff.

The second stud is that of Sultan Sou, between sixteen and eighteen miles from the town of Malatia, in the province of Harpout, in the interior. It controls an area about 600 miles square, which includes thirty-two villages, having some 5,000 inhabitants; part of this area is given up to agriculture, and the remainder devoted to horse breeding. The Sultan Sou stud was founded in 1861 and was reorganized in 1889; attached to it is another farm—that of Osman Dide where there are enormous hill pastures, to which the droves of horses are sent in the summer. There are at Sultan Sou twelve pure Arab stallions, six Kurdish and one Hungarian; seven pure Arab mares, twenty-one Kurdish and twelve Hungarian. The object of this establishment is the improvement of the Kurdish breed of horses; the number of Kurdish brood mares will this year be increased to 200; how many mares of this strain are running at large in this district is unknown.

The Tehoukourova stud owes its name to a once famous breed of horses which is said to be now nearly extinct. It



is situated in the province of Adana, which is bounded on the south by the Mediterranean, and consists of two vast estates, one covering 197,680 acres, and the other 74,160 acres.

The larger estate consists of prairie land comparable to the plains; the second lies on the shore of the Mediterranean at the mouth of the river Djiham which flows through it.

This stud was established in 1892. There are now eight pure Arab stallions, three Kurdish and five horses described as "Anatolites," obviously after the province of Anatolia in western Asia Minor. There are twenty-one pure Arab mares and sixty-two of the Tehoukourova breed. Many native horses also run loose on the two estates. The special object of this stud is to establish the Tehoukourova breed. It is under the direction of a colonel of the Turkish army, who, besides a civil staff, has a troop of cavalry.

The Vezirie stud farm covers about 131,780 acres and lies close to the city of Bagdad, between the Tigris and Diala. This stud, which is under the direction of a general of brigade, was founded in the year 1896, and no great progress has so far been made with it. The stock last year consisted of ten stallions and fifty-seven mares, all pure Arabs, the object of the Vezirie stud being the production of Arabs of the best strains.

Endeavors are made every year to buy the best young horses from the wandering tribesmen, but good ones are rarely obtainable; in 1900 it was hoped that 100 would be secured, but three foals and one filly of the highest stamp was all the director of the stud was able to buy from the tribesmen.

Local covering stations are established in various districts, and these are supplied with stallions from the four large government studs; pure Arab stallions are often loaned to village communities far from the stud headquarters for the sole purpose of improving the breeds.

Each stud carries a stud book which contains the guarantees and proofs given by Sheiks in respect of horses obtained from the tribesmen. These warrants are verified by



the inspectors who travel in the interior and pay regular visits to the tribes in question.

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With the exception of private individuals, who are interested in the breeding and grading up of the sporting horse (trotters and runners) and a few others (considering the population) who go in for the heavier grades, Clydesdale, Percheron and Norman, we as a nation are singularly behindhand as breeders of the all round useful saddle horse; there are plenty of a kind, fancy gaited and bronchos, but the ideal war horse and hunter are few and far between.

Among the many subjects which are sure to occupy an important place in the question of army reorganization, the supply of suitable horses for military purposes must engage serious attention.

It is waste of time and money, with no object gained, for us to experiment, and in the end start on just what other nations, after many long years and enormous expense have to hand. Take for instance the Arab; it has been found that he does not, and never can, come up to expectations as a weight carrier and long distance horse any more than he can make the speed of the present time racer.

It is true that all of our fastest horses are direct descendants of the Arab, and although superior to his ancestors of a hundred years ago, the race horse of to day is lacking in that degree of stoutness so necessary in the military horse. Even races have been made shorter to accommodate the increased speed and decreased stamina.

Records are lacking that show the conditions of distance and weight before 1700; but there is plenty of evidence to show what race horses were required to do during the eighteenth century; then the race horse was an animal combining speed with stoutness. The early thoroughbred, like the Arab of to-day, lacked size; he averaged little more than 14.2 in height, in this respect resembling the three famous sires from which all modern race horses are descended.

The Byerly Turk, imported to England in 1689; the

Darley Arabian, 1730; and the Godolphin Arabian 1730, were all under 14.2 hands in height. These mere ponies, compared with the thoroughbred of to-day, performed the tasks which we read of in old turf records between 1718 and 1764.

During October, 1718, at Newmarket, twenty-three matches were made, and in twenty-two the distance was four miles.

A match of the old style was always run in three heats; four miles was the usual length of a race, but six-mile races were not uncommon.

The weights prescribed by law varied from 140 to 168 pounds.

In the endeavor to breed for greater speed, bigger and longer striding animals were produced. Admiral Rous writing in the year 1806, said that the English race horse had increased an inch in height in every twenty-five years since 1700.

Such horses as "Shark" and "Hambletonian" had bone and substance; they had extraordinary stamina, staying power and ability to carry weight.

"Shark" was foaled in 1771, was got by "Marsk" from a mare by "Snap"; he started twenty-nine times and won nineteen times, receiving six forfeits and paying four; he made more money up to his time than any other horse. "Shark" came to America in 1786, and in Virginia laid the foundation of the famous Snap blood.

"Hambletonian" was foaled in 1732; he was got by "King Fergus" from a mare by "Highflyer," and was bred by Mr. J. Hutchinson, of Skipton, near York. "Hambletonian" was only once beaten; on that occasion (at York, August, 1797) he ran out of the course just after starting. There are a great many direct descendants of this wonderful horse in the United States.

These animals could be depended on to run three four-mile heats in one afternoon, and could be depended on to get stock with their own valuable characteristics.

The modern race horse has undergone a great change from his progenitor of a century ago. It is well known that in breeding of every species of animal the endeavor to ob-

tain one quality, when it succeeds to produce the quality sought in greater proportion, often produces manifest deterioration in other attributes. Such has been the consequence of aiming solely at speed; other essentials, such as strength and endurance, have been in a great measure lost.

The foregoing is merely to show that we have the blood in our own country that could produce animals (properly crossed) second to none in the world.

In my report on the British remount system, published in the *CAVALRY JOURNAL* some months ago, I tried to show that we had better advantages, as regards room, forage, pastures, etc., than any country in Europe; I also recommended as a remount system a combination of the European and British.

To produce the best, there must be the right kind of stallions and mares to commence on; in all foreign countries that have accomplished the best results, the thoroughbred blood predominates; it seems as if what is known as the hackney breed (really a half-breed) or mares on that order, about the merits of which as regards history and breeding something must be known, as it is useless for breeding purposes to take stud or dam merely on their looks. The studs should be thoroughbreds with good records, especially in regard to their stamina and progeny.

The old breed of Norfolk trotters, which is fast dying out were sought after as crossers, chiefly on account of their staying powers; they are compact built, cobs, rarely measuring much over 14.2. It is no uncommon thing in Norfolk to-day to get up behind one of these hardy little horses and doing eighteen miles within the hour.

The idea of starting a breeding establishment in the Philippine Islands, judging from records of horse breeding in the tropics, is almost certainly doomed to disappointment. If it were feasible, the practice of taking any weed of a mare and using the mongrel stallions that have been shipped here from time to time, in itself must spell failure; but the main factor against it is the knowledge that (quoting from Sir Walter Gilbey, one of the foremost authorities on the sub-

ject, and from whose book on "Horse Breeding" most of the above is taken):

"Climate and the prevailing normal conditions of life are paramount in determining what the size and character of the horse of any given country shall be."

Again, Major General Sir John Watson, an experienced Indian horse man, speaking on England's endeavor to create an Anglo-Indian type of horse, capable of reproducing itself, says it can never succeed; the endeavor has been persevered in for a century, has failed, and will fail, "for we are fighting against nature, and nature will beat us in the long run."

The late Colonel Hallen, Army Veterinary Department, for over thirty years general superintendent of horse breeding operations in India, expressed the following views in his report on the subject:

"In temperate climes, with good feed, horses of great size can be produced and depended on to maintain their size. In very hot countries, which offer comparatively poor feed, such as Arabia, Persia, and northern India, we find the native races small, wiry and active. Again, in cold countries we find the smallest and most stunted horses. In India, the old stud department, for various reasons, failed to establish an improved breed of horses in the eighty years of its existence.

"It is almost hopeless to try and override the natural laws which determine the size of the horse of any country without materially impairing its valuable qualities."

The Colonel added that it is unreasonable to expect that the reorganized Horse-Breeding Department should have accomplished the task during the twenty odd years it has been at work; seventeen years have elapsed since then, and although the Indian government started with 300 stallions no good results have been accomplished as regards the improvement of the home bred animal for army remounts.

The Walers shipped in from Australia, when seen after shipping and the long sea voyage, did not impress one very favorably at first sight; they seemed to lack bone, were too long coupled, and in general had rather a weedy appearance.

But many who were prejudiced at first, have changed their opinions; since these horses have been filled up and handled they have improved one hundred per cent. and have become very likely looking remounts. It is certain that they came from good blood, as there are very few besides thorough-breds and half-breds among this class of horses in Australia. Although no severe tests have been imposed upon them as yet, there is every likelihood of them proving to be a very useful mount for the kind of work that troops have in the Philippines.

The average price paid for these mounts would not call for the best class of horses for remounts that could be bought in Australia.

Without going into details regarding a national system of horse breeding, which would benefit the farmer, small breeder and large breeder alike, it seems to me that a general distribution of picked stallions, of the breed most suited to the needs of the local community, either by the United States government or by each individual State, would be of profit to the nation at large, and the military service would then be able to obtain suitable remounts from the breeder direct, as of course a system of registration would be kept of mares covered and foals born. This would do away with the sinking fund caused by the employment of middle men. The nominal fees charged would more than reimburse the expense involved.

A selected number of young horses and mares could be sent to the remount farms for breeding purposes. The animals bought could be sent to the remount depots for handling and training until old enough to be forwarded to regiments.

In this way combining the Continental and English systems, a perfect and permanent mount for the army could be assured in a few years, at much less expense than the present method of supplying the doubtful class of animals that are now furnished our service.

## MACHINE GUN ORGANIZATION, EQUIPMENT AND ARMS.

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BY FIRST LIEUTENANT ALBERT E. PHILLIPS, TENTH CAVALRY.

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THE tactical employment of weapons in war are usually based first on their characteristics, though sometimes a weapon is invented to supply a need, and its tactics are thus decided before its birth.

The characteristics of the machine gun and its tactics largely influence its organization. Our machine gun platoons have officially been in existence since July, 1906, and have had varying degrees of success, depending largely upon the interest taken in, and the assistance afforded by, superior commanders in furthering the experiment.

Colonel Macomb truly said: "Just now these platoons seem to be beggars and orphans, meeting with many rebuffs and not at all popular, having no special home of their own, and living like a pauper family, broken up and divided for support among its kinsmen."

A provisional organization was necessary during the experimental stage of development, but that stage has been passed, and it is with the organization believed to be the most applicable to the Maxim machine gun, which has been adopted by our army, that this article is principally concerned.

Several able officers have suggested a trial of the Rexar gun for the cavalry, principally on account of its portability; a doubt existed as to the mobility of the Maxim, it being thought too cumbersome and slow in coming into action, re-packing, etc. The Rexar (Danish) gun is, in general appearance, similar to a rifle, and is fired with the shoulder as a support. Its weight and action require that it be fired from the prone position only. The gunner receives a part of the

recoil and consequent vibration, and its accuracy depends largely upon the nerves of the firer. It cannot cover an area or follow a target with the accuracy of a gun mounted upon a tripod. Its rapidity of fire is less than the Maxim.

The weight of the Rexar is given as 16 5 pounds, and this is the principal reason advanced for its adoption by the cavalry. But this is misleading, in that we must not only consider the weight of the gun, but the weight carried by the gun animal. In the case of the Rexar, the gun is carried on the gunner's horse, while the Maxim requires a mount for gunner and one for the gun and tripod. The gunner's mount, Rexar, includes gun, saddle, 400 rounds of ammunition and kit, and the weight is given as 100 6 pounds. If we add to this the weight of the gunner, averaging let us say, 165 pounds, we have 265.6 pounds to be carried by the gun horse.

With the Rexar there is a saving of one pack animal.

The weight of the Maxim with water jacket filled is 74.5 pounds; tripod with cleaning rod 78 pounds. The weight of pack, English model saddle, is given as 266.95 pounds. This weight includes an extra barrel of 7.5 pounds, but does not include any ammunition. The English model ammunition packs average about 280 pounds.

From the above it will be seen that the weight carried by the gun animals of both types of gun is practically the same. And as the ammunition which would be used with either gun would undoubtedly be the service ammunition, the subject must also be considered from the standpoint of facility of ammunition transport.

The Maxim being heavier, there is, therefore, less recoil and vibration and consequently greater accuracy.

The Maxim gun is not slow in coming into action or in repacking. In a well trained cavalry organization the gun can be unpacked, set up, loaded, aimed and fired in less than twenty-five seconds. In the last department meet (Luzon 1907) one of the guns of the Tenth Cavalry platoon was unpacked, loaded, aimed and fired in seventeen seconds. In this instance the gun squad was dismounted.

With improvements in the pack outfits, better time can be made. This subject will be considered later.

To accomplish the purposes of machine guns, the two most important factors are mobility and efficiency. To acquire the former, there must be a reduction in the weights of loads now carried or the loads must be carried in a different manner, and all organizations should be mounted. For the latter, sufficient men having the intelligence and ability to acquire the requisite knowledge to efficiently perform their duties must be assigned. It is recognized there will exist a difference of opinion as to mounting all machine gun organizations.

General Alderson (England), having commanded a brigade in South Africa, his remarks on the mounting of machine gun units are well worth our consideration.

"I am of the opinion, if the most is to be got out of the guns, the detachments, even with infantry, should be mounted.

"The tendency of a pack animal led by a man on foot seems to be to go slower than the man would go without it. Hence machine guns easily get behind infantry, and are unable to make up ground lost by necessary detours, by the time taken in going into and coming out of action, etc., nor can they be quickly sent to a position in advance or on a flank, etc. With the mounted detachment, it is quite different. There is no question about the guns keeping up, and they can be sent quickly to any desired position.

"They can hold on to any such position as long as required, to cover the advance or retirement of their infantry, and then easily catch them up or get into another position. In fact, if the detachments are mounted, the value of the gun is more than doubled. \* \* \* With the detachments unmounted, they are not mobile enough to a brigadier, because he cannot get them where he wants them in time."

The innumerable uses of machine guns demand mobility greater than infantry. Machine gun organizations in almost every army are mounted, and if ours are not, we shall lose a decided tactical advantage.



The smallest unit in our army which combines tactical and administrative functions is the company, troop or battery. Tactical efficiency being its prime requisite should be the basis of the first computation of the strength of its components. The result must then be modified to obtain administrative, without loss of tactical efficiency. To obtain the requisite tactical efficiency we must have an ample number of men, yet there is a limit to the number of men who can be economically employed, and we must not exceed that limit.

Colonel McClernand, who was an observer with the armies in Manchuria, reports: "The loss among men serving machine guns is usually great, and this requires that a large number be trained in each regiment to use them."

The efficient service of the gun demands a squad of five men, one of whom should hold rank. This number of men provides two to each side of the gun mule to unpack gun and tripod respectively, and the fifth man to take down tool box and ammunition boxes.

The rapid consumption of ammunition requires celerity in its replenishment, and two men of the gun squad would be utilized for this purpose.

A leader for each gun mule is necessary. Without being wasteful, but solely for efficiency, there should be a leader for each ammunition mule, whose load must be instantly available, at least in a mounted organization. We have but four ammunition mules in each section, the loads of which should be immediately available.

In dismounting for action, it is simpler, quicker and better for conducting the led animals, if each man of the gun squad has a leader or driver on his right, to whom he may pass his reins. If the platoon or battery is marching in column, with the gun mules of each section followed by the four ammunition mules of their respective sections, with chiefs of section at the head of their respective sections, the organization is then in almost instant readiness for action in any direction. In case of action to either flank, the guns have about their normal interval, and the column is not too long for quick frontal fire or fire to the rear, especially if the

guns move to a flank and halt in echelon. The led animals, which include horses of the gun squads, require protection, so it makes for economy as well as efficiency if each of the four ammunition mules of a section has a leader. A non-commissioned officer must be in command of each section thus composed.

It is believed that an organization of four guns, peace strength, expandable to six guns, war strength, would be the least expensive and most suitable, and could conveniently be organized to conform to the strength in men and horses of a troop of cavalry. This number of guns does not permit assigning two to each squadron in time of peace, and the writer is of the opinion they should not be so assigned except temporarily for a special mission. It is submitted that, as a general principle, the best results will be obtained from their collective action.

This gives us a firing battery of four sections, each section composed as follows:

1 sergeant, chief of section,	} Gun squad.
1 corporal, gunner,	
3 privates,	
5 privates (drivers),	
10 total.	

The chief of section should have immediate charge of all material, animals, etc., of his section and, in action, observe, direct and control the fire of his piece, under direction of his platoon or battery commander.

There would be, then:

4 sergeants,  
4 corporals,  
32 privates.

Exercises in maneuver require a guidon. One sergeant is therefore added, who, in action would have immediate charge of the led animals of the firing battery.

As an assistant to the captain in the performance of fire observance and control, signal, casualties, etc., one sergeant is added.

For the service of security and communication, as range

takers, position finders, etc., two corporals are added, one for each platoon.

The necessity for two trumpeters is obvious. In an executive or administrative capacity, we must have a first sergeant, a quartermaster sergeant and two cooks. As the quartermaster sergeant will have charge of the property "in hand," there should be a stable sergeant to properly care for the animals, stables, etc.

The number of animals demand the services of two horse-shoers. One farrier and one saddler are necessary. There should be a competent mechanic, a man qualified to make repairs to the guns, pack-saddles, etc.

The enlisted personnel would consist of, then :

First sergeant .....	1
Quartermaster sergeant.....	1
Stable sergeant.....	1
Sergeants .....	6
Corporals .....	6
Cooks .....	2
Horseshoers .....	2
Farrier.....	1
Saddler .....	1
Chief mechanic.....	1
Trumpeters .....	2
Privates .....	32
Total .....	56

It is believed that a better and more suitable title should be given the men now designated "Farriers and Blacksmiths" and the following is offered: Designate farriers "Veterinary Corporals," and blacksmiths, "Horseshoers."

It is assumed that as many complete elements should be maintained in a battery as are necessary to its prompt expansion into an efficient unit for war service, especially so in a mounted machine gun organization which, for efficiency, demands a high degree of tactical and technical training.

#### THE TRAIN.

The train for a pack organization should consist of "pack transportation." Experienced packers, and at the same time good machine gun men and a well organized pack train cannot be made in a day and, while it would be extravagant to keep the train "horsed" for war service, its organization in-

volves not only the personnel necessary for this service during "times of peace," but sufficient trained personnel as a nucleus for the organization of additional gun and pack elements when the possibility of war appears.

The number of privates provided for each section contemplates the actual number required for the "manning" of the section, no provision having been made for the replacement of the guard, fatigue, stable duty, sick, in confinement, casualties, absentees, etc., therefore, in the organization of the necessary train for peace service, if the requisite number of privates are provided, we shall have men for such contingencies, a trained nucleus for war service and a support for the guns in outbreaks or any emergency requiring actual campaigning during peace. Keeping these premises in view, and at the same time not exceeding the limit to the number of men who can be economically employed, it is believed that nine privates added to the number previously estimated would be sufficient for the train. The enlisted strength of our organization would be then sixty-five men.

If to the enlisted strength there be added a captain to command the battery, a lieutenant to command each of the two platoons and another for reconnaissance work, who will be a trained "mitrailleuer" to command the third platoon when the battery is organized for war service, the personnel will be complete.

#### ANIMALS.

It is thought that sixty horses will be ample as mounts for the enlisted personnel, as from five to ten per cent. of the men are nearly always left in the post.

As the weights of our present experimental packs are already too great to permit the mules to maintain the gaits of cavalry for any considerable distance, and, as it is advisable to have the pioneer and intrenching tools accompany the guns (in infantry the men also carry their kits on the ammunition mules), one mule is provided for each section to carry this equipment, to reduce and equalize weights of packs in case a mule is killed or disabled, and to carry such other impedimenta as required

In view of the assumption that platoons will frequently be detached, it may seem desirable to make each platoon more nearly independent by the assignment of mules to carry the mechanics tools, stores, etc., and two mules are provided for each platoon.

To carry two days' rations for sixty-five men we shall need three pack mules. Two days' grain for sixty horses, plus four horses (officers'), six mules. Officers' baggage, etc., two mules.

The four gun and ammunition sections require twenty mules. Two days' grain for thirty nine mules, plus grain for the mules carrying these loads, four mules.

In the above statement no provision is shown for carrying the tentage ordinarily carried during peace maneuvers, etc., but as the eight mules carrying tools, etc., and the four mules with the grain for mules have light weight loads, the tentage might be carried on these mules. During a war campaign when tentage is not needed, these mules would have loads sufficiently heavy by the replacement of tentage with other stores.

Complete in all its details of men and animals, then the battery would be organized as follows:

OFFICERS.		ANIMALS.	
Captain .....	1	Horses (officers') .....	4
First lieutenants .....	2	Enlisted men .....	60
Second lieutenant .....	1	Total .....	64
Total .....	4		
ENLISTED PERSONNEL.		PACK MULES.	
First sergeant .....	1	Firing battery:	
Quartermaster sergeant .....	1	Four guns .....	4
Stable sergeant .....	1	Ammunition .....	16
Sergeants .....	6	Intrenching tools .....	4
Corporals .....	6	Total .....	24
Cooks .....	2		
Horseshoers .....	2	The Train:	
Farrier or veterinary corporal .....	1	Mechanics tools, etc. ....	4
Saddler .....	1	Rations .....	3
Chief mechanic .....	1	Forage .....	10
Trumpeters .....	2	Officers' baggage, etc. ....	2
Privates .....	41	Total pack mules .....	43
Total enlisted .....	65		

The strength of enlisted personnel and horses is the same as prescribed for a troop of cavalry.

The number of pack mules to each section is increased by one over that now authorized.

Should wagon transportation be furnished instead of pack, three escort wagons would be required, so the number of mules in the proposed train (nineteen) is but seven more than would be required if wheel transportation be supplied, but to furnish wheel transportation to what might be termed a "pack organization" would be to impair its efficiency. Then again, in case a pack mule of one of the sections is killed or disabled, a mule of its kind would be at hand to carry its load, without seriously interfering with the transportation problem, and a trained packer and machine gun man would be available to replace a like man of a gun section.

#### BATTERY EQUIPMENT.

Before venturing to approach the portion of the subject of which this article treats relating to equipment and arms, it would be well to endeavor to clearly appreciate the rôle which the machine gun attached to cavalry is designed to fill and toward which equipment and arms are but as means to an end.

The value of the mounted troops in war depends on the increased mobility they possess in virtue of being mounted. And by mobility we mean not merely speed, but capacity to cover long distances at relatively high speed while still having something in hand at the end of the march for fighting or any other eventuality; and, like the proverbial weak link in the chain, the least mobile component of a cavalry command measures the mobility of the unit.

The machine gun with the cavalry should be a substitute for rifle fire rather than a supplement to it.

Movements in advance, to a flank, pursuits, rear guard actions, to check a turning column, to secure and hold positions until the arrival of the infantry, to move rapidly to other positions, allowing the cavalry to be more than ever, cavalry pure and simple, is a rôle which, for its accomplish-

ment, makes it requisite that the machine gun organization attached to cavalry be equipped with guns, saddles, etc., the weights of which, and the manner of carrying the loads be such as to not hinder or impede the movements of the cavalry command.

It is not thought necessary to enter very deeply into details nor to examine and discuss the weight of every article. My idea is to bring forward points relating to equipment and arms which seem well suited to discussion.

The characteristic and ballistic elements of the Maxim give it precedence over the Danish gun (Madsen). And it has been shown that the weight of the Maxim does not compare unfavorably with the other gun, when the subject is considered from the standpoint of facility of ammunition transport, and the weight of load carried by the gun animal, if equipped with a suitable pack-saddle.

We now come to the subject of pack-saddles. So far no distinction has been made as to the equipment of our machine gun platoons, infantry and cavalry platoons having been equipped alike. We have been experimenting with the "aparejo" with Rice frame and with a modified English saddle, neither of which, for various reasons, seem suited for this special service.

While the "aparejo" is probably the best pack-saddle for general use, it is not suited for cavalry machine gun service. It is too cumbersome and heavy and requires experienced men to properly handle it. The weight of the gun and tripod pack (aparejo) is given in the hand book as 278.38 pounds. This does not include the box with tools and spare parts, or any ammunition, which should by all means be carried on the gun mule so as to be instantly available.

The weight of the "aparejo," without stuffing, is given as 53.75 pounds. The stuffed "aparejo" weighs about 60 pounds. The Rice frame weighs 29 pounds. Deducting the weight of the gun and tripod (152 pounds), our gun mules carry a saddle load of 131.63 pounds, on which to pack a load of 152 pounds, making the total weight of load 283.63 pounds.

The ammunition loads are 291.54 pounds, and 287.20



pounds; with the pick mattock, hatchet, shovels, etc., these packs will average over 300 pounds.

G. O. 46, Philippines Division, August 17, 1908, states:

"The standard load shall be from 200 to 300 pounds, depending on the size and strength of the animals and the conditions of the service. Care should be taken not to over-tax animals, especially those not fully developed, while breaking and training them for field service, but they should be gradually hardened till they are able to carry the standard load for the distance of ten to twelve miles in a day's practice march."

Daly's manual of instruction for pack trains states: "Weight of load 300 pounds, maximum hourly travel five miles per hour, twenty miles per day, for sixty days continuously. \* \* \*. This applies to well organized and seasoned pack trains." Surely pack animals carrying such loads, on bulky saddles, suitable only to a mule gait cannot be expected to maintain the gaits of fast moving cavalry for any considerable distance.

The usual gaits of our pack trains are the walk or amble and fox trot. Increased gaits and frequent halts are harder on pack animals than continuous marching, and in time of peace our pack trains usually do not halt, but continue the march until camp is reached.

The English saddle consists, in brief, of two leather panels, with canvas pads sewn to the panels. In the upper right and left hand corners two pieces of leather are sewn to the flap around three edges. These form seats for the ends of the steel side bars of the frame, and are intended to hold the panels and frame together. They soon rip out and then the saddle breaks down. The hair padding gets matted and produces swellings, and there is no way to remedy it without ripping the saddle. The side bars are small and produce swellings of their size and shape. Rain falls between the panels, wetting the blanket and pads. The canvas pads soon wear out. In case of a broken frame it is rather difficult to pack the loads. However, it may here be stated that several platoon commanders have recommended this



saddle in preference to the "aparejo," principally on account of its light weight. We must have a pack saddle of a simple, solid, light pattern, permitting the machine gun to follow the cavalry across country at all gaits—a pattern that will not injure the animal's back; one on which the loads might be lashed with the diamond or other hitch in case of a broken frame. We must have a frame-work built to fit an animal's back, and not only built to fit the saddle or pad. The hangers should be close fitting and tightly fastened near the body of the animal, without compression of the sides, the center of gravity being neither too high or too low, giving full play to the animal's muscles, and to its breathing movements; in short, a cavalry equipment more like a saddle to carry a man than like a pack-saddle. The dimensions of the gun, the tripod and the cases should be considered in the construction of the saddle. Keeping these premises in view, the writer has devised and had built under his supervision, a pack outfit designed to fill all of the above requisites and to overcome all objectionable features of the two saddles now in use. With this saddle, the Maxim gun is not too heavy to accompany cavalry across country at all gaits.

The new saddle may be stuffed while on the animal's back, thus being assured of correct distribution of filling material. Rain cannot fall between the pads, wetting the blanket, as in the English saddle. It has no leather pockets to rip out. It is made almost entirely of leather and will outwear several English saddles. In case of breakdown of frame or hanger the load may be lashed with a diamond, squaw or other hitch. The frame is constructed along principles differing from either of the two now in use and weighs considerably less.

The frame for the gun and tripod packs is arranged to carry two boxes of ammunition, but more may be carried if desired. The load is not high riding, is carried so as to disturb as little as possible the natural center of gravity, allowing the animal to maintain its equilibrium and consequent free movements at all gaits.

The pack has fewer parts and weighs less than the English model.

## EQUIPMENT.

*Horse and Individual.*

It is believed that the horse and individual equipment should be the same as issued to the cavalry.

*Arms—Individual.*

Opinions differ as to the advisability of retaining the rifle, though all seem to agree that each machine gun soldier should carry a revolver.

The saber is in the way and should be discarded.

Considering only mounted organizations, the rifle would be carried on the horse and would not be in the way. The battery would not have to depend upon other troops for support.

As the men of the gun squads do not lead mules, these men would be available for work with rifles against patrols, small bodies, etc., making it unnecessary for the machine gun to go into action against such bodies, and covering the withdrawal of the last gun on the firing line.

Careful training with the rifle is requisite for efficient service of a machine gun.

As the proposed organization conforms in enlisted strength to that of a troop of cavalry, it may be used as cavalry, as the men of the present cavalry platoons may be used, for those occasions when fast work is required and machine guns are not needed.

If, in the organization of mounted machine gun units, the rifle is retained as an individual arm, there would be created a combatant force containing the greatest degree of fire power combined with independence, mobility and flexibility.

## UNIFORMITY IN THE TROOP.

BY CAPTAIN CORNELIUS C. SMITH, FOURTEENTH CAVALRY.

IN writing on this topic no criticism of army regulations is intended. On the contrary all rules for the uniformity of organizations are what they should be, as far as they go, but in some cases seem limited.

In the discussion of the subject it will be necessary, in a few cases, to get away from the main question, but this is for the purpose of ultimately reaching it more fully and satisfactorily. No doubt my views will not be fully concurred in throughout, and if some who read this paper know better methods for effecting what it strives for, or some points not touched on here, I will be glad to hear from them.

It is hardly necessary to assert that to attain results constant and painstaking efforts are needed on the part of the officer commanding the organization. His attention must be so steady, and his judgment such, that the interest and attention of his men be kept.

In order to attain good results in making uniformity in and about the barracks and stables, the use of the troop fund should not be hampered, especially as this money is, as a rule, the result of the ingenuity of the organization commander, and, strictly speaking, belongs to the men under him for all purposes of improvement.

Regulations state (Par. 319): "The purchase from \* \* \* company funds of any article which can be obtained on requisition from a supply department is forbidden." This ought to be most liberally construed by all authorized fund book inspectors, and no fault should be found by them when reasonable expenditures, which apparently conflict with this regulation, are made with the approval of the company council. As a matter of fact it is difficult to determine what should or what should not be purchased

with money of the fund, and for this reason I am of the opinion that the utmost liberality should be allowed a company, troop or battery commander in the expenditure of his fund. This argument seems especially potent when the talents of the organization commander produce the money of a fund.

Uniformity in the troop is best described under several different heads, viz: Uniformity of the men, among the horses, at the barracks, at the stables, etc. Each of the foregoing heads will be touched on in turn, and a few photographs are given to illustrate graphically this article.

G. O. No. 169, W. D., August 14, 1907, if carefully adhered to, will, as a rule, make the men of an organization comparatively similar in appearance. An inspection, however, by one who knows the niceties of military dress will reveal some things which should not be. For instance, in how many organizations will we find all the men wearing their campaign hats fixed in the same shape? In how many companies will all the men be found wearing the string on the hat to keep it from blowing off? What troop is there where some of the men do not have either the shoestring, legging string, or both, dangling?

Note the two following pictures, and what is meant by uniformity in the troop, in so far as the appearance of the men is concerned, will at once be apparent.



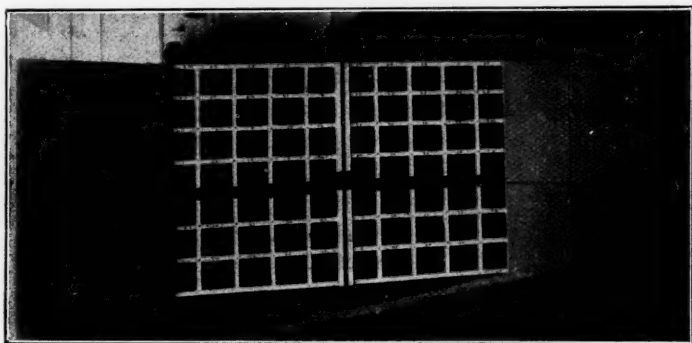
A "SLOPPY WEATHER" SQUAD.



A NEAT SQUAD.

Uniformity in horses of a troop is more satisfactorily attained if all are of the same color, so that in turning out for parades, etc., the platoons can be distinctive. In a sorrel troop the lightest colored animals might make up some of the platoons, with the chestnuts in others.

Each horse in line should be made to appear as much like his neighbor as is possible. The manes and tails well groomed, hoofs (on occasions of parade and ceremony) blackened, and shoes shined. The English straw brush (shown on top of rack in next picture) is the best for manes and tails, and if it can be procured in no other way, should be



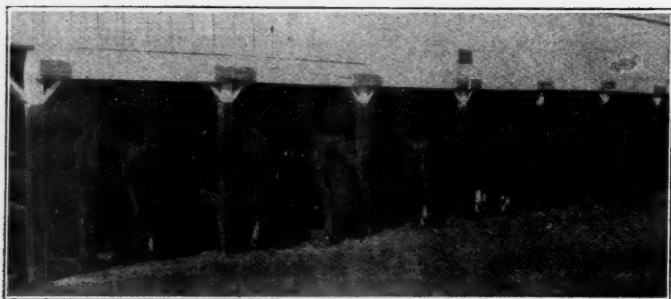
CURRYCOMB AND BRUSH RACK.

purchased from the troop fund. Liquid shoe blacking gives fine results on the hoofs; shoes being polished with emery cloth.

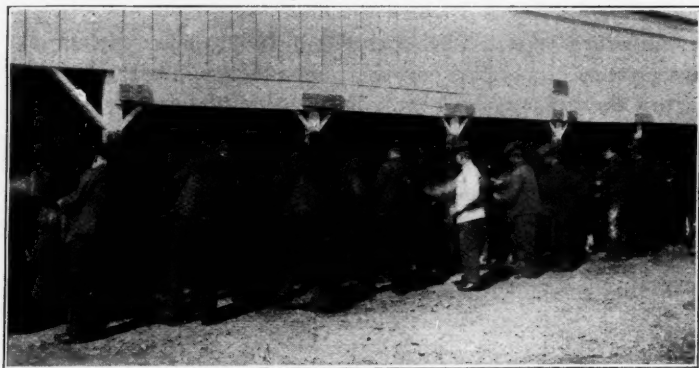
Only systematic grooming will make a horse appear well taken care of at all times. A stated number of minutes should be spent by the groom on the near side of the animal (neck, body and legs), the same length of time on the off side, on the tail, and on the mane and forelock. Every man should be working on the same part of the horse at the same time so that the first sergeant may keep check to see that there is no loitering. The photographs following show the result of the foregoing method of grooming, and grooming as explained.



SOME GOOD MANES.

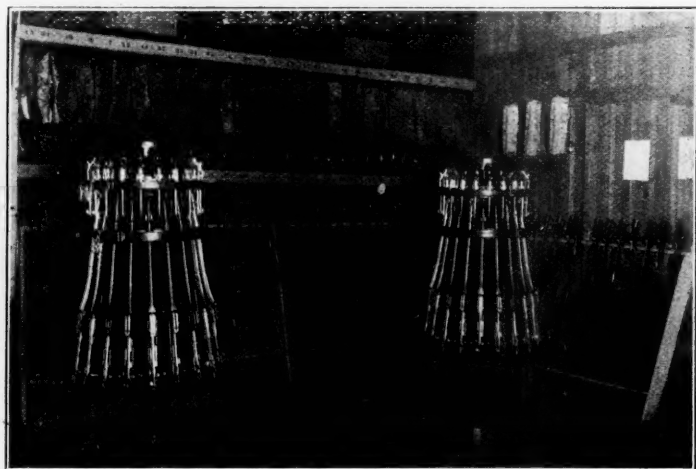


SOME WELL GROOMED TAILS.



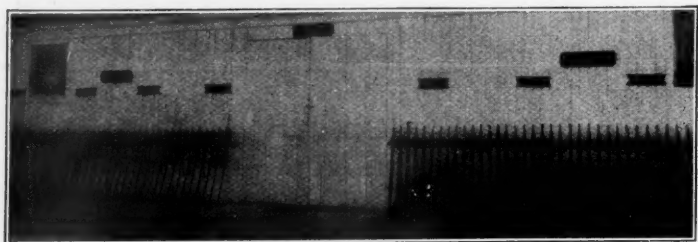
"BRUSH OUT THE TAIL."

To make the barracks uniform in appearance every box locker should contain the same articles, arranged in each exactly alike. Each man's clothing should be hung on the wall (each man should be supplied with at least three coat hangers from troop fund) as is his neighbor's. The equipment is to be kept together. The next picture will best illustrate this paragraph.



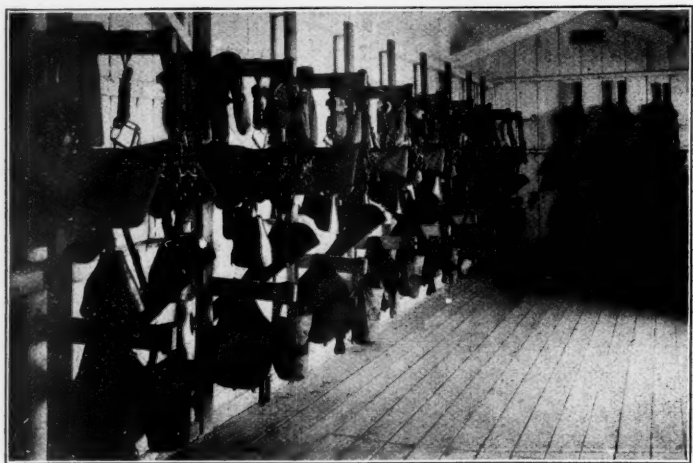
INTERIOR OF BARRACKS, SHOWING ARMS AND EQUIPMENTS.

At the stables it is very satisfactory to have everything in uniform shape. The currycomb and brush rack shown in a picture in another part of this paper indicates how this part of the kit may be kept. Racks should be provided for all rifles and sabers at the stables for use while the men are saddling and unsaddling. These are shown in the next picture.



RIFLE AND SABER RACKS AT STABLES.

The one peg allotted each trooper for his saddle and part of his equipment is by no means sufficient to keep a neat, uniform looking saddle room. I have given each man of my troop three pegs, as per picture following.



INTERIOR OF SADDLE ROOM.



The giving of so many pegs to each man entails work, as the saddle rooms provided contain, as a rule, only enough pegs for giving one to each trooper, and in order to provide three, others must be made, and room must be found for additional saddle rooms. The satisfaction of not having the equipment cramped, the clearness with which it shows up for inspection, and the neat appearance of the saddle room in general, pays many times over for all the work and trouble one goes to.

## NOTES ON A TRIP THROUGH INDIA.

BY MAJOR W. C. BROWN, THIRD U. S. CAVALRY.

I ARRIVED in India at Tuticorin from Java June 16th and proceeded thence to Calcutta, making short stops at Madura, Trichonopoly and Madras.

At Calcutta I called on the U. S. Consul, who kindly gave me letters to His Excellency, the Lieutenant Governor of Bengal, at the summer capital at Dargeeling; the Viceroy of India at Simla; and the Commissioner of the Northwest Provinces, Peshawar.

From Calcutta I proceeded to Dargeeling, which is reached by a two-foot gauge (almost a toy) railroad through fifty miles of the Himalaya Mountains. This road is quite a feat of engineering, and the problems solved in its construction are similar to those which will be met with if ever a railroad is constructed from Camp No. 1 to Baguio; in the Philippines. The trucks on this road carry four tons each, and the curves in the track are so sharp that in one or two instances a complete loop is made within a radius of about thirty-five yards.

Dargeeling is the summer capital of Bengal, and one of the most beautiful hill stations in India, being within sight of Mounts Everest, Kunchinganga, and a dozen or more peaks of 20,000 feet or more in height. It is garrisoned by a couple of companies of infantry, and is at the end of the trail leading across the Himalayas into Thibet, over a pass some 16,000 feet in height. I was told, however, that white men were not allowed in Thibet, and only a limited trade, by means of pack transportation, is carried on by natives.

I was very cordially received by the Governor, Sir Andrew Fraser, who expressed himself quite freely regarding the progress being made by the English in governing India. The government, he said, is trying to get the natives to de-

pend more and more upon themselves, and while the progress is slow, it is gratifying to note—even in his own time—a marked improvement.

Years ago he said if one were asked whether the native petty officers could be depended upon, the reply would have been that such and such ones were all right, and could be depended upon, but on the whole they were not reliable.

Now the case is reversed, and the reply to the same question would be that so-and-so would doubtless accept a bribe, but on the whole they might be regarded as trustworthy. The proper way to go about it, he said, was to work with their head men—the natural leaders. It is only recently that this has been thoroughly appreciated by the British.

In giving franchise to the natives the best plan he finds is to let each class select their own electors for themselves, and from themselves. The farmers to select a farmer, the Mohammedans to select a Mohammedan, etc., and the men thus selected then vote for a man to represent the district. By this means the people are fairly represented in any matter at issue.

The second in authority in Bengal is now a native—something impossible twenty years ago.

Important posts in the judiciary have been held for many years by natives, whose acts and rulings necessarily have to be in the open—as in open court—where wrong doing is easily detected. A dishonest executive, however, can more easily cover up his tracks.

At Benares I called upon Major W. C. Nicholson, commanding the Eighteenth Infantry, and was very hospitably received and entertained that evening at the officers' mess. The regimental mess is so prominent a feature of the social part of the military establishment as to deserve more than a passing mention.

Unmarried officers are by regulations required to belong to the mess and to take their meals there. In reply to my query as to what would happen if an officer elected to run his own mess, I was told that the unmarried officer would have to pay his share of the mess bill anyhow, and in event

of his not taking his meals at the mess he would be called to account by the colonel for not doing so.

While in India I was entertained at a number of these regimental messes, which are handsomely furnished, and enable officers to subsist far more economically than when messing separately or in small messes.

They afford officers a means of entertaining foreign officers and other strangers in a manner creditable alike to their regiment and service; but better than all, they bring officers together several times a day, thus affording means of transacting minor matters of business and an interchange of ideas on professional subjects, as well as the promotion of harmony and a regimental *esprit de corps* among the officers themselves.

The mess building is used for courts martial and courts of inquiry. Married officers attend their formal monthly mess dinners. It is to be regretted that such messes are with us the exception rather than the rule. The Britisher is a great sportsman, and takes a just pride in decorating his mess table and the walls of his mess rooms with the trophies of sport and the hunt. The morning on which I was entertained at the First Lancers, Captain Macauley of that regiment had just returned from a tiger hunt in the southern provinces, bringing back nine tiger skins, one measuring ten feet from tip to tip; three of these animals he shot within a period of about twenty minutes.

Upon inquiry I learned that they do not have garrison schools for officers as we do.

Those who have taken the course at Sandhurst tell me that the actual work there covers a period of only about nine months.

They have examinations for promotion for officers of all grades up to and including the second in command, and while there is no direct law penalty of discharge from the service awaiting them who fail, as is the case in our army, there seems to be no "let up" on that account on the part of officers to pass; for an officer who fails in his examination may be indirectly forced out of service.

One officer who had been appointed to the service with-

out an examination, said that the examination came particularly hard on him by reason of this, and that officers frequently, just before examinations, paid twenty pounds (\$100) per month to be coached for the ordeal. No officer can be promoted to a captaincy in the Indian army until he has first passed the School of Musketry. The examination for majors to determine their fitness for promotion to lieutenant colonel usually consists in the solution of a field problem, and no officer can be promoted to the command of a regiment until he has passed his examination.

There is a Staff College at Quetta. The competition for places at this college is very keen. Graduates have the letters "P. S. C." (passed staff college) after their names on army lists, and, generally speaking, it is from these that staff officers are selected. It would seem that we might to advantage follow the British plan and show more fully an officer's record in our monthly army list.

Officers get two months leave a year, counting from the time they leave their station until they return. Those stationed on the extreme frontier get three months leave.

I was informed that in India quarters in kind are not supplied. Officers rent their own quarters, even though these may be government property. The amounts assessed for rent of quarters are: Subalterns, 50 rupees (\$16.00) per month; majors, 70 rupees (\$22.00) per month; lieutenant colonels, 100 rupees (\$32.00) per month.

The furlough provisions for native soldiers are very liberal, especially during the hot season. They said, "We must do this or we can't get the men." These extended furloughs enable men to go home and do considerable work on their farms, and they frequently bring back recruits with them. When going to their homes on furlough they get free transportation.

The pay of the native infantryman is, on entering the service, 9 rupees (\$3.00), with an extra 3 rupees (\$1.00) per month for subsistence.

The system of recruiting is territorial, but scrupulous care is taken not to get men of different castes in the same organization.

When men prove to be unsuited to the service it seems to be easier to secure their discharge than in our army. If a soldier of less than three years' service is "unlikely to become a good infantry or cavalry soldier," he may be discharged by the colonel of the regiment. After three years of service the man may claim his own discharge, but there are certain restrictions as to this, so that he does not often take advantage of it.



On the following morning, by appointment, I proceeded to the parade ground, where the recruits were being drilled. I was shown one of the company store rooms, and a private was turned out in full field equipment for my inspection.

My attention was called to a sleeveless rain coat, or cape, of willesdenized canvas, which seemed to be regarded with much favor; also a short overcoat of loosely woven woolen material, lined, and very warm, and yet not long enough to impede the legs in marching.

When in the field, on marches, maneuvers, etc., the weight carried by the native infantryman consists of his rifle, 100 rounds of ammunition, three days' rations and but little else. His load is thus considerably lighter than ours.

Their shelter tent is of willesdenized canvas, rather heavier than ours. I think ours is the superior article.

It was noticed that this regiment was equipped with aluminum canteens of the German pattern.

The advisability of an aluminum canteen was investigated and reported upon by the writer no less than fifteen years ago, when the Germans and French were just equipping their troops with it, and the opinion is expressed now, as then, that it is the best, cleanest, and in the long run the cheapest. The tin canteen becomes quickly rusty inside, its shape renders carrying it less convenient than the German pattern, which is concave on the side next the body. The felt covering, secured on the aluminum canteen by means of snap buttons, is easily removable, so that the canteens of a company can be periodically taken in and boiled, thus rendering them clean and sterile.

Attention in this connection is invited to the recommendations on this subject of our military observers in the Russo-Japanese War.

Their field cooking outfit is a marvel of lightness and compactness, being made of aluminum, and the various utensils "nest," so as to afford a maximum of capacity for a minimum of bulk. This is on similar lines to cooking outfits sold in the United States by dealers in sportsmen's supplies. This light, cleanly and compact arrangement suggests ideas for the improvement in our own company kitchen outfits.

Mosquito bars are used by enlisted men to a limited extent only.

To illustrate the difficulties of government in India, where caste is so predominant a feature, I was told that when measures were first taken to put in water pipes in some large city (Lucknow, I think), it was found that, were the water put in, one of the principal castes would not use it, as the tenets of their religion forbade the use of water coming through

pipes or any such means prepared by the hand of man. Finally after serious consultation by their priests in Calcutta the use of water so obtained was decided to be permissible. One of the principal causes of the Indian mutiny, it should be remembered, was the compelling of native soldiers in loading their muskets to bite the ends of paper cartridges which were sealed with tallow and butter, the touching of the mouth with any such substance being regarded by the Mohammedans and Hindus with horror.

As my visit to India was during the hot season I saw mainly recruit drills, and in these much latitude is permitted in the matter of uniform, both with officers and men, civilian clothing frequently being worn. The helmet for Europeans is regarded as a necessity, and attached to the rear a sort of apron is frequently worn to protect the nape of the neck from the direct rays of the sun.

On the khaki coat officers wear a neat, stamped, dark brown leather button, instead of the bronze button worn by us.

On June 30th I visited by appointment the First (Duke of York's Own) Lancers, and was shown there their barracks and stables by Major H. L. Roberts, commanding the regiment. The mounts of this regiment of four squadrons are serviceable horses about  $14\frac{1}{2}$  to  $14\frac{3}{4}$  hands in height.

Men are armed with the lance, a curved saber and rifle. Each squadron is provided with a pioneer equipment consisting of:

One axe, felling, curved.

Six axes, pick (simply an ordinary small pick).

Four bill hooks.

One spoke shave.

Twenty shovels (small pointed shovel with a T handle).

Two spare helves for pick axes.

Four spare handles for shovels.

They had ordinary litters for carrying wounded such as we used in the U. S. service, but the feet are provided with wheels three and one-half inches in diameter.

They also had a number of blanket litters which are



essentially the same as what we improvise from the shelter half and a couple of rifles.

I was shown the Patterson carrier for the rifle, and was told that on account of frequent breakages it had been condemned as a means of carrying the rifle. Major Rogers is inclined to the opinion that the faults might be remedied. I certainly agree with him, and have heard other officers express the same opinion. Our scabbard is not satisfactory, and something on the lines of the Patterson carrier is the most practicable method which I have seen for carrying the rifle. For illustrations see pages 618-622, *CAVALRY JOURNAL* for April, 1906.

This regiment is shortly to make a change of station by marching, and they informed me that from twelve to fourteen miles a day would be about their rate of march.

The men furnish their own mounts and transportation, the latter consisting of one small pack mule with pack saddle to each two men. This mule carries about 180 pounds, and the "Syce," or native servant, who rides him. The "Syce" is the servant of the two native soldiers, who pay him from their personal funds for his services.

This being the slack season, about thirty per cent. of the men were off on furlough. These furloughs are for quite long periods, up to about seven months.

Men are allowed to take their horses with them on furlough. A horse which dies in service is replaced without cost to the soldier.

The quarters of the native soldiers are quite primitive, with dirt floors, and built at their own expense, with thick brick walls, parallel to and close to the stables. In this regiment they are divided into rooms so as to give two men to a room.

Horses are kept in stable during the day time and out on the picket line at night.

The method of securing horses, quite different from ours, deserves mention. Instead of being tied by a halter strap to a picket line they are secured by a long, six to eight-foot rope, from a peg to a hind fetlock joint and by a short, two-

to three-foot rope, running from a peg to the opposite front foot. Occasionally both hind feet are secured.

This method of securing horses was later noticed in the Royal Dragoons.

Horses are groomed two or three times a day, but they get neither herding nor grazing, nor do they have a corral in which to roam about at will.

On July 1st, I visited the Twenty-fourth Punjabi "lines," as they call their barracks, and was shown about by Majors H. A. V. Cummins and S. H. Climo.

At the time of my visit about one-third of the regiment was absent on furlough, but the remainder presented a fine, snappy appearance, both in the execution of movements and in their dress.

The white officers are mounted, which I understand to be the rule in all the native regiments.

The barracks are single story, with thick mud walls; dirt floors, constructed at the expense of the men of the regiment.

The men sleep on primitive cots of their own manufacture, and are doubtless satisfied with these accommodations, as they are rather better on the whole than what they have been accustomed to in their homes.

There appears to be in garrison no system of company mess, such as obtains in our service, but the men get so much and find their own subsistence.

As to clothing, the men get upon enlistment 60 rupees (\$20), which is enough to provide him with a full kit. This is supplemented by a small additional periodical allowance. The company commander assists the men by making contracts for cloth, detailing a man on special duty as tailor, etc.

Each battalion has its Maxim gun detachment, the guns being carried on pack mules—rather small but serviceable animals.

The rifles, cartridge belts, ammunition, etc., are kept under lock and key in a small room adjoining barracks, called "The Bell of Arms." This rule is general, is very strictly enforced, and includes such private arms as the men may have.

I was shown by Major E. Mackins, commanding the Royal Dragoons, the stables of that regiment, where they have mostly Australian remounts costing forty-five pounds each.

They will average  $15\frac{1}{2}$  hands in height, look sleek and well kept, and of quite a uniform grade. As a class or grade they are somewhat superior to the remounts which we have recently bought in Australia and delivered in Manila for \$136.00. These horses, however, are by no means worth \$85.00 each more than ours, that being the difference in cost. There are a few Hungarian and Argentine horses in this regiment of about the same stamp as the Australian horse.

They keep their horses in the stable in the day time and on the outside at night. They are bedded with sand, which



seems to answer the purpose, and is more economical than straw. Their horses are usually "cast" at fifteen years of age.

There is one "Syce" (native groom) employed to about every three horses. They assist in the care of horses, grooming and stable police generally.

Their forage allowance is twenty pounds of dry grass, roots and all, and ten pounds of grain, composed partly of bran and partly of crushed oats.

Horses' eyes are protected from flies by an eye fringe. This rule seems to be general in all mounted organizations, as I noticed its use subsequently at the remount depots of Saharanpur and Amednaga.

There was no corral, and no running water available.

I was also shown there one or two of the barrack rooms in this regiment. Men sleep on iron bunks without springs.

They have the new short rifle, which they regard with much favor. The saber is dull with bright steel scabbard, not up-to-date. They also carry the lance, but do not think much of it as a practicable weapon, largely on account of the difficulty in carrying it.

At the Royal Dragoons I was also shown in succession the messes of the sergeants and corporals, both of which are very comfortably furnished, that of the sergeants even elaborately so, being quite as good and in some respects possibly better furnished than some of our officers' messes in the States.

The Cantonment of Lucknow comprises a garrison of four regiments of infantry, two of cavalry and two field batteries. The buildings as a rule are much farther apart than with us, covering a space of about two by two and one-half miles, or five square miles in extent.

In so extensive a military establishment one is surprised at finding no telephone system, especially as conditions here, buildings far apart and a hot climate, make a telephone system the more desirable.

The movements of troops, as was shown in the Russo-Japanese War, will in future, both in maneuver, marches and on the field of battle, be directed by telegraph and telephone. Much of this must be done personally by general and staff officers. It would, therefore, seem to be important that they keep themselves constantly personally familiar with the use of telephones.

The evening before leaving Lucknow I had the honor of dining with General Sir Ronald Macdonald at one of their large messes. General Macdonald had command of the troops in the expedition into Thibet some four years ago, and has the unique distinction of having commanded troops in an engagement over 19,000 feet above the sea level, in an almost unknown country, with a line of communications running back over a pass 16,000 feet high. His account of these operations was most interesting.

The transportation for this expedition consisted of thousands of coolies, each carrying about eighty pounds of supplies on his back. In fact, while the soldiers on this expedition numbered only 2,500 men, the entire personnel, including transportation coolies, numbered 25,000 men.

An account of this expedition is to be found in Lieutenant Colonel Waddell's "*Lassa and its Mysteries*."

In the low temperatures (24° Fah.) which they experienced they were obliged to remove all oil from the working parts of their guns to prevent clogging by the stiffening of the oil. The mechanism of the quick-firing guns, such as lock, firing pin, etc., had to be carried in pockets in the shirts of the gunners that the warmth of the body might keep the lock in working condition.

The water jacket was filled with twenty-five per cent. of rum, with the addition of enough kerosene to prevent men from drinking it.

#### MANEUVERS.

Their maneuvers they try to make as progressive as possible, small units operating against each other at first, and gradually increasing until one division is pitted against another.

When large bodies are turned out bullock-carts are employed as transportation, and with these two miles an hour is about all that large commands can make. They find it advisable on the score of economy not to attempt maneuvers where more than 10,000 men are engaged.

The usual practice is to start out on a maneuver about 2 P. M., bivouac, engage in the maneuver, and return to barracks about 3 P. M. the next day. Last year the maneuvers were suspended on account of the famine.

They have a practice, he told me, of allowing officers to serve for a term of three months (which was thought to be hardly long enough) with another arm so as to get familiar with their working, etc.; a cavalry lieutenant would serve with field artillery, an artillery lieutenant with infantry, etc. This is an idea which we might adopt to advantage.

I discovered that the officers here are well informed re-

garding our Civil War, and were assiduously studying Henderson's Stonewall Jackson.

#### REMOUNT DEPOTS.

On July 7th I had the pleasure of visiting the army remount depot at Saharanpur, Major T. G. Peacocke, superintendent. In this establishment they have some 1,600 horses, 500 of which are cavalry and the remainder artillery remounts.

They are purchased at a flat rate of forty-five pounds each at either Calcutta or Bombay. If at the former place it costs three pounds to transport them to the depot. The purchasing is done by an officer of the Remount Department assisted by a veterinarian.

Horses are kept at the remount depot for about a year, or even at times as long as three years, depending on what demand there may be from the regiments for remounts.

They do not buy Australian horses younger than four years, as they think that horses develop in their earlier years better in their own country.

A period of about nine months at a remount depot is regarded as essential to get the horse acclimated. A minimum (war time) measure would be four months at the depot.

At first horses are simply driven around and handled, the force for this purpose being about one native "Syce" (groom) to every ten horses. Later, horses are taken in hand and broken to be driven or ridden, the force for this purpose being one "Syce" to three horses.

In breaking cavalry remounts no attempt is made to do more than to see to it that the horse is broken to saddle so that he can be ridden. His finished training as a troop horse is left until he joins his permanent command.

Much of this training is in the way of driving, which is directly in the way of the education of the artillery horse, and a good thing for the cavalry remount as well.

There is a farm of about 700 acres run in connection with the remount depot upon which all the hay and grass is raised, much of it alfalfa, of which a number of cuttings a

season are secured. All harvesting is done by hand. Practically all of the grain is purchased.

The personnel comprises a major as superintendent, an assistant, two or three sergeants, and about 1,200 natives. The latter get six rupees (\$2.00) per month.

The greater part of the horses are kept in five long stable buildings, about 300 yards or more in length. The depot is divided into two sections, as a precautionary measure should disease break out. It is regarded as essential that a reserve of at least 3,000 artillery and 500 cavalry remounts be kept on hand. The smaller number of cavalry horses is explained by the fact that they are securing each year a greater number of horses bred in India suitable for cavalry.

The stable buildings are of brick with tiled roof and a relatively small corral adjoining. The clay stalls are the finest I have ever seen. Each horse has his descriptive card in rear of his stall. They allow about double the space in width of stalls that we do. This is on account of the hot climate.

The use of the eye fringe is universal. Horses' tails are not docked at the remount depot, as they regard it necessary for the tail to extend as far as the hock joint that the horse may defend himself against flies.

From about 9:30 A. M. to 3:00 P. M. horses range at will in a paddock where drinking water is always available. They are also allowed to run at will in the corral at night, being turned out after the evening feed is consumed.

#### FEEDING OF HORSES.

They feed about ten pounds daily of green alfalfa or impie (a sort of plant not unlike green corn or sugar cane), also dry chaff and not more than three pounds of grain.

Barley is roasted or parched before being fed. Oats are invariably crushed and hay cut into chaff, and for these purposes they use horse power (four horses) and are, while breaking in horses for artillery, able to utilize them for supplying the power to crush and cut the feed. By cutting the hay into chaff they claim that they have less waste than when fed long.



"The economy and utility of chaff feeding cannot be overestimated; it should be in every way encouraged when practicable."\* (Animal Management 1908, p. 122.)

This is a practice subsequently observed at the remount depot at Ahmednagar and in large stables in Bombay. It is also the rule in Australia, and with the Dutch in Java.

This is a custom to which it is desired to invite especial attention. The Britisher is a good horseman, and English gentlemen, both at home and in the colonies and dependencies of Great Britain, ride and engage in mounted sports far more than the same class in the United States, and by reason of this the more intelligent classes have been led to study the best and most economical way of feeding the horse.

Fodder is, all things considered, rather more costly with them than with us, and naturally they adopt means to get the most for their money in this commodity.

Every troop commander in our cavalry, in passing through his stables in the morning, has noticed in the droppings the quantity of oats which has gone through the horse whole, the animal securing no nutriment whatever from it. This is most pronounced in the case of horses who bolt their food.

All this loss is avoided by crushing the oats. Our wasteful methods of feeding are simply the result of custom, and we may well consider the advisability of adopting methods of people who certainly know as much about the feeding and care of horses as ourselves.

Our extravagant and wasteful methods constantly work to the disadvantage of the expensive mounted services, and I have often wished that our people could see something of the economical methods which I have noticed practiced abroad. Their advantages would then be more apparent and there would be less prejudice against adopting them.

Horses are clipped at the proper season, clippers run by foot power (bicycle gearing) being used for this purpose.

\*Animal Management, Edition 1908. Prepared in the Veterinary Department for General Staff War Office. Sold by Wyman & Sons, Ltd., Fetter Lane, London, E. C. Price 1s. 6d. A valuable little treatise on care and feeding of animals.



## PURCHASE AND HIRE OF OFFICERS' MOUNTS.

Officers are permitted to buy horses from the remount depot, or may hire them from the government at ten pounds per year.

Much attention is given to matching teams and breaking them to drive well. This is done with cavalry as well as with artillery horses.

## SURRA.

I inquired here about surra, but was told that they now have but little trouble from it, although it is prevalent in Burma.



The prevailing opinion is that surra comes from a fly which transmits the disease by its bite.

It is believed that if all the animals in an infected district were removed, healthy animals coming in would be given surra by this fly, which is found usually in low, swampy ground.

Its range of habitat seems to have clearly defined limits. For example, in coming over a certain road it was found that animals invariably contracted surra. The route was changed and no more animals became infected.

On the steamer from Bombay to Suez, I had the pleasure

of traveling with a veteran officer who, during his varied service had commanded a camel corps where surra had been quite prevalent. He had made a study of the causes of the disease, and is convinced that the germ is found in swamps and in grass grown in swampy ground. Such grass is to be carefully avoided. The disease, he said, was contagious, but not infectious. Ground on which surra-infected animals had been kept can be made harmless by burning grass over it and by plowing and sprinkling it with lime, just as we did in Batangas during the surra epidemic about 1903. Animals dying of or killed on account of surra should immediately be burnt.

I was driven about at Saharanpur in a two-wheeled cart called a tonga. The springs attached to the tongue, taken in combination with the yoke working freely over the collars, take up the jar and make it a most comfortable vehicle.

#### REMOUNT DEPOT AT AHMEDNUGAR.

From Saharanpur I proceeded to another remount depot at Ahmednagar, a healthy station, at an altitude of about 2,000 feet above the sea. They usually keep about 1,000 horses here, of which about ten per cent. go to the cavalry and the remainder to various classes of artillery.

When first received the horses are put "at liberty" in a paddock for some months to get acclimatized. They are not groomed during this period, the force for these horses being but one "Syce" to every six to ten horses.

The length of time the horse is kept at the remount depot varies just as at Saharanpur, but I was told that if a horse was but four years old when received it was safe to say that he would be kept two years at the depot.

Before being drafted to a regiment horses are caught up and placed "on the lines" *i. e.*, in stables, for a number of months, being exercised on five days in the week by being ridden in the riding school or driven. While in stables the force is one "Syce" to every three horses. The stables are quite similar to those at Saharanpur—open stables of brick with clay stalls and with an abundance of room between horses.

The daily ration for horses kept up in stables is: Two pounds gran (a sort of pea), two pounds bran, one pound barley, one pound coolti, seven pounds dry grass, seven pounds karbi (millet), thirteen pounds green alfalfa.

Horses are secured here, as at Saharanpur, by means of a short rope attached to a peg at the front of the stall, and is thence secured to a hole in one end of a stick of hard wood about three and one half feet long, called a "dunda." A rope about two feet long from the hole or eye in the other end of the "dunda" is attached to the halter. The function



ARAB STALLION.

of the "dunda" is to prevent the horse from becoming entangled or caught in the rope.

A breeding establishment is run in connection with the remount depot, and I was informed that they were quite successful in the breeding of Arabs—not more than one in twenty-eight mares failing to have a foal. I noticed that one of their Arab stallions was slightly over fifteen hands in height, and was told that they did not care to breed them taller, for if they did the horse lost the characteristics of the Arab.

I was told that stumbling, though not to the extent of falling down, is a fault of the Arab. However, they are glad to get him, and have one regiment—the Fifteenth Hussars—at Muttra, mounted entirely on Arabs. There were about forty Arabs in the paddock when I visited it, but I had a better opportunity a few days later of seeing this class of stock in the Arab stables in Bombay, where I saw about one hundred fine stallions. Their characteristics to the casual observer are clean limbs, small, compact, well shaped hoofs, square croup and a tendency to have a "dish face." Average height about thirteen and three-quarter hands.



Among the novelties shown me here were:

1. A huttie, or grooming mitten. It is not unlike a large bath mitten, and made of coarse rope. In using it the hand is inserted and the horse is both hand rubbed and cleaned at the same time. It is not so searching in its action as a good bristle brush, but it costs only about two cents, is flexible, more compact and lighter than a horse brush, and easily carried in the saddle bags.

2. A "putta," which is simply a loosely braided one and one-half inch rope tied about the neck of a half broken horse before being turned loose in paddock. We have all seen how difficult it is to catch up a horse which has been running loose for a month or more.

This "putta" costs but a few cents, does no harm to the horse, and when about his neck is always an available help in catching him.

One of the largest importers in India of Australian horses is Baldock, of Bombay, whose stables I visited and where I was shown a number of Australian remounts.

He told me that the freight alone from Australia was nine pounds per horse, and in his last consignment he lost 30 out of a total of 400 shipped. This result he considered a greater loss than ordinary, however, for I recently shipped 600 horses from Australia to Manila with a loss of but seven.

#### LORD KITCHENER'S CHANGES.

Lord Kitchener is regarded as a great organizer, and usually secures from the government what he asks for.

Before his time the country was divided into districts or departments, as in our service, and there were five district commands as follows:

1. The Bengal or Eastern.
2. The Bombay or Western.
3. Madras.
4. Pemjant or Northern.
5. Burma.

On June 1, 1907, this system of administration was abolished and the military forces in India were divided into the Northern and Southern armies.

The Northern army since that time has been composed of:

1. The Peshawar division.
2. The Rawal Pindi division.
3. The Lahore.
4. The Meerut division.
5. Lucknow division.

The Southern army is composed of:

1. The Quetta division.
2. The Mhow division.
3. The Poona division.
4. The Secunderabad division.
5. The Burma division.

Before his time it was possible to concentrate in a month on the frontier not more than about 40,000 men in event of trouble. By breaking up a number of the smaller posts and establishing larger ones—particularly on the northern frontier—the dispositions now allow a concentration of 200,000 men on the northern frontier within a very limited period, say five weeks.

The advantage of the present organization was illustrated in the recent Mohmand campaign, when brigades were able to move out promptly with their own staffs.

#### PAY AND ALLOWANCES OF THE NATIVE TROOPER.

The trooper is expected to furnish his own mount and transportation, and the system by which this is done appears to a stranger to be rather complicated.

The trooper's mount and his (half) share in the pony or mule required by two men for their transportation will, it is calculated, cost 450 rupees (\$144.00), 400 rupees being for the horse, and 50 rupees (\$16.00) being for the half share in the transportation.

The trooper usually makes a deposit of 200 rupees (\$64.00) and the remaining 250 rupees (\$80.00) is entered against him on his account as a debt. This is taken from him by monthly deductions, so estimated as to cover a period of about four years.

When the debt has been fully liquidated, the man on discharge is entitled to receive the entire sum of 450 rupees (\$144.00) back. In order to effect this arrangement without loss to the regiment, it is of course necessary to provide an insurance fund for the horse and pony. To these funds, which are called the "Horse and Pony Chunda," respectively the man contributes monthly—to the former about 3 rupees (96 cents) and to the latter about 8 annas (16 cents) approximately.

These assessments are calculated on the supposition that the animals will do eleven years service or thereabouts. The exact amount of eleven years would be \$147.84.

In many cases, naturally, these expectations are not

realized, but though on the one hand horses may fail early, on the other they frequently last longer than the estimated period. Then again it must be remembered that there is a further asset to the fund by the amounts realized in the sales of old and worn out horses. At any rate if these funds are prudently managed, that is to say, that if the regimental authorities when purchasing do not exceed the average price, they ought to remain on a sound basis.

In addition to such funds as have already been referred to, viz: the assami, "Horse and Pony Chundas," there are many others to which every man in the regiment is called upon to contribute. These may roughly be divided into two classes, the one from which the man received his money and the other for which he puts value at the time in some shape or form. Among the former are, as has been mentioned, the assami, and besides this there are the regimental fund, sometimes the tent and saddle funds.

The regimental fund was originally established with the object of providing capital for immediate expenditure. It amounted to a month and a half's pay from each rank. This capital is merely money borrowed from the men of the regiment, who on discharge receive back the whole of their contributions. The same usually applies to the tent and saddle funds, which are run on the same principle. For instance, in the saddle fund, a man pays the full price of new saddlery, though what he actually receives may be old. In addition he insures his property for wear and tear by contributing a certain amount monthly, calculated on the average life of the saddle. In case of discharge or the saddle being worn out, he either receives the full price back or a new saddle.

Among the funds to which he contributes and receives value in lieu of money are the forge fund, from which his horse is doctored and shod, the grass fund which supplies forage, the store fund, clothes and equipment and the syce fund for the pay of his servant.

His pay may be stated as 31 rupees (\$9.92)—20 rupees (\$6.40) for his horse and 11 rupees (\$3.52) for his personal services; this latter, however, is subject to certain deductions or assessments. Briefly stated, it may be said that *the gov-*

*ernment secures his services for about ten shillings a week or \$126.00 per year.*

The government supplies arms and ammunition.

The more one investigates the cost to the government of native troops, the more does it become apparent that their services are secured at a very low rate.

The native cavalry is foraged by the government granting to the regimental commander an allowance for this purpose. This he handles to the best advantage, frequently engaging in farming operations and raising the forage for the regiment.

When new country is opened up through means of irrigating canals, it is the practice to give grants of land to regiments stationed adjacent thereto, upon which they proceed to raise their own forage.

The greater part of the Indian army is growing to depend more and more on country breds for remounts, and when land is taken up along new irrigating canals by natives, the government stipulates that for every fifty-six acres of land the occupant shall keep a mare whose foals may be purchased by the government at the rate of twelve and one-half rupees for each month of the age of the foal up to eighteen months, when it would be worth 225 rupees, or \$72.00. The government in such cases gives the services of a stallion free.



## THE ARMY IN INDIA; A SUMMARY OF REGULATIONS, ORGANIZATIONS, ETC.\*

BY AN OFFICER IN THE INDIAN GENERAL STAFF.

THE command organized in 1895 divided the country, roughly speaking, as follows; the Punjab Command comprised almost all the country administered by the Punjab government; the Bengal Command, in addition to Bengal and the Northwest Provinces (now the United Provinces), took in Assam and parts of Central India and the Central Provinces; the Bombay Command included, in addition to the Bombay presidency, Rajputana, Baluchistan, Aden and the remaining parts of Central India and the Central Provinces; and the Madras command contained Burma, Hyderabad and Mysore in addition to the Madras presidency. A lieutenant general with a large staff of combatant and departmental officers was appointed to each command and was given powers to deal with many cases which had hitherto required the authority of army headquarters or the government of India.

In 1896 the amalgamation of the Bengal, Bombay and Madras branches of the Indian Medical Service, under a director general was carried out.

In 1897 the class squadron and company system was introduced into the Hyderabad contingent; sanitary officers were appointed to each command; and the Central India horse, the Bhopal and Merwara battalions and the Deoli and Erinpura Irregular Forces were transferred from the control of the Foreign Department to that of the Commander-in-Chief.

\* Copy furnished for publication by Major S. H. Slocum, Second Cavalry, Military Attaché.

An additional native mountain battery was raised; the number of British infantry battalions in India was reduced from fifty-three to fifty-two, the establishment of each of the latter number being increased by twenty men; and battalions of native infantry were first lent to the Imperial Government for duty in Colonial garrisons.

A first class district, under the general officer commanding the Punjab Frontier Force, was formed, embracing the Northwest frontier from Abbottabad to Dera Ghazi Khan, (including the Peshawar district).

The double company system was introduced into the native infantry; a new native mountain battery was raised; three battalions of native infantry were raised for duty in colonial garrisons; Assam Gurkha battalion was delocalized; and the transport service was completely reorganized. A considerable change of frontier policy was inaugurated, as it was decided that all regular troops should be withdrawn gradually from Southern Waziristan, the Khyber, Samana, and from the Kurram and Tochi Valleys, their place being taken by local militia, and that movable columns of regulars should be maintained in frontier cantonments to support the militia in case of necessity. In this way waste of regular military force is obviated, and the interest of the local inhabitants in the maintenance of peace is aroused.

The native army was re-armed with the magazine rifle; the Commissariat Department was re-formed and re-named the Supply & Transport Corps; mounted infantry schools were established; a fourth battalion of native infantry was raised for colonial garrison duty; and accelerated promotion was sanctioned for the officers of the Indian Staff Corps, captains and major's ranks being attained after nine and eighteen years' service respectively.

An ambulance bearer corps of six thousand bearers was organized; three field howitzer batteries were added to the establishment; a corps of frontier garrison artillery was formed; the brigade division system for horse and field artillery was introduced, and ammunition columns were re-organized; a fifth battalion of native infantry was raised for colonial garrison duty; the Imperial Cadet Corps was estab-

lished during the three years 1898-1902, four battalions of Hindustani Mussulmans were re-constituted; and two ordinary and one fortress (for Aden) companies were added to the Bombay Sappers and Miners.

The designation, Indian Staff Corps, was changed to Indian army; the whole of the regiments of the Indian army were re-numbered as a single army (an exception being made in the case of Gurkha battalions and the Corps of Guides) instead of by presidencies and irregular forces; Burma was made a separate district under a lieutenant general and was placed directly under Army Headquarters; the re armament of the mountain artillery was completed; and the enlistment of Mahsud Waziris into the regular army was authorized.

In 1904, on the conclusion of a revised arrangement with the Nizam of Hyderabad regarding Berar, the Hyderabad Contingent ceased to exist as a separate force; its cavalry of four regiments of three squadrons each was reorganized in three regiments of four squadrons each and its field artillery was disbanded. A pioneer battalion to be composed of Hazaras was raised; an Assam Gurkha battalion was delocalized; large additions were made to the mule transport maintained permanently and it was decided to increase gradually the native army reserve till it reached a strength of fifty thousand. During the period of 1904 thirteen Madras infantry battalions and the Madras cavalry regiments were re-constituted by the enlistment in them of Moplahs, Gurkhas, Punjabis, Jats and Rajputs.

In this year a large reorganization was inaugurated. This aimed at a more scientific distribution of the army during peace and at the mobilization of a field army of not less than nine divisions and eight cavalry brigades. Under it the Madras Command was abolished, and the Commands and Staff were reorganized.

The principle underlying this arrangement was that the army should in peace be organized and trained in units of command similar to those in which it would take the field. Each peace division (except Burma) should be able to place in the field one cavalry and three infantry brigades and should in addition, comprise such other troops as were re-

quired for the maintenance of internal order in the divisional area when the division itself was withdrawn for war. The scheme was estimated to take some years to work out as new accommodation was required in many cantonments. The organization shown above will undergo further alteration before the scheme is completed.

The peace combat staff of a division was fixed at two assistant and one deputy assistant adjutant general; of a brigade, under a brigadier general, at one deputy assistant adjutant general and one brigade major; and of a brigade, under a colonel on the staff, at a brigade major and a second class station staff officer.

At the same time a regular programme of increasing reserves and generally adapting mobilization arrangements to suit the larger field army was entered upon.

A Staff College was started in India to train candidates for staff employment; to be located ultimately at Quetta, it opened in temporary quarters in Deolali; a programme of extension of strategic railways on the frontier was initiated; a large scheme for the expansion of ordnance factories was started; and arrangements were made to re arm the whole of the horse and field artillery with quick firing guns.

At the instance of Lord Kitchener, who condemned the existing system of military administration in India as one of dual control and divided responsibility, the Secretary of State for India held an inquiry into the question early in 1905. On review of the whole question and on the advice of a committee assembled for the purpose, the government of the day at home decided that in future there should be two ministerial departments or agencies, through which the Governor-General in Council should administer the army in India. The most important, termed the Army Department, should be in charge of the Commander-in-Chief as extraordinary member of council, and should deal with questions of command, staff and regimental appointments, promotions, discipline, training, organization, distribution of the army intelligence, mobilization, schemes of offence and defence, peace maneuvers, war preparation and the conduct of war. The other termed the Military Supply Department in charge of

an ordinary member of council usually a military officer, should deal with the control of army contracts, the purchase of stores, ordnance and remounts, the managements of military works, the clothing and manufacturing departments, Indian Medical Service and the Royal Indian Marine. At the same time it was suggested that the Military Accounts Department should be transferred to the control of the Finance Department of the government of India. Owing to the resignation of the Viceroy (Lord Curzon) and the change of ministry at home, the inauguration of the new system was delayed till March, 1906.

In the above it has been impossible to detail anything like the whole of the many reforms and additions made during the last six or seven years. About five hundred British officers have been added to the regiments of the native army; a great deal has been done to improve the health and sanitary surroundings of the soldier; frontier communications have been much improved; a policy of rendering India independent in the matter of war stores of all kinds has been initiated and has made great progress by expansion of the various factories, etc.; much has been done to improve the armament equipment and mobilization of the army; the official regulations have been revised and simplified and the work has been decentralised to a great extent; special attention has been paid to the higher military education of officers; the annual grant for maneuvers has been increased; military grass and dairy farms have been started, and practically every army department has been reorganized.

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There is little or no mention of volunteer or militia corps in the nineteenth century, and those in existence before that time appear to have disappeared gradually. The mutiny brought several volunteer corps into being, some of whom did excellent service, and the present volunteer force in India may be said to date its origin from that period. Till 1885, when the strength of the volunteer force stood at 13,368, they met with no great encouragement. Since that date it has been the declared policy of the military adminis-

tration to foster the movement. Grants for buildings, field days and camps of exercise have been made; wound and injury pensions for volunteers and pensions to their widows have been granted under certain conditions; the capitation allowance has been somewhat increased and small allowances towards outfit to officers have been sanctioned. Volunteers in India have been made eligible for the volunteer officers' decoration and the long service medal. Some new corps have been formed and the strength of the force has risen to about 33,000, including however, the reserve and cadets of whom about 31,000 are "efficients."

The Governor-General in Council, subject to the control exercised for the Crown of the Secretary of State for India, is the supreme head of the army in India. The ministerial agencies through which the authority of the Governor-General in Council is administered are two: the Army Department and the Department of Military Supply.

The former of these is in charge of the Commander-in-Chief who is an extraordinary Member of the Governor-General's Council, while an ordinary Member of Council, usually a military officer, presides over the latter. In addition, there is a Military Finance section of the Finance Department to deal with questions of army finance.

Under the constitution of the Government of India, the Secretaries to Government in the Army Department, the Department of Military Supply and the Military Finance Department are the heads of these departments; they are responsible to the Governor-General in Council that the business of their departments is carried out in accordance with the authorized rules, and they have direct access to the Governor-General. They are each assisted by an establishment of deputy and assistant secretaries. Further, in this connection, the members of the Army Headquarters Staff perform two separate and distinct functions; one as members of the Headquarters Staff in all matters in the control of the Commander-in-Chief as such; the other, the function appertaining to departmental officers of the Army Department, which does not, however, carry with it any of the powers of a Secretary to the Government.

Directly under the Army Department is the Army Headquarters Staff; this is separated into the following divisions: Division of the Chief of the Staff, Adjutants General's Division, Quartermaster General's Division, Medical Division, Military Secretary's Division.

The Division of the Chief of the Staff, which is subdivided into two sections, (1) military operations, and (2) training and staff duties, deals with the following questions; military policy, organization, distribution, preparation for war, intelligence, mobilization, plans of operations, higher education and training, and maneuvers.

The Adjutant General's Division, deals with questions of recruiting, discipline, training, education and equipment of units.

The Quartermaster General's Division, which is subdivided into four sections, (1) general branch, (2) cantonments, (3) supply and transport, and (4) veterinary, deals with questions of accommodation, movements and cantonments, and with the organization, administration and training of the supply and transport corps (except the portion of it under the Department of Military Supply) and of the Army Veterinary Corps.

The Medical Division deals with all medical questions, except some concerning the administration of the Indian medical service, which is partially a civilian department, and is partly under the Department of Military Supply.

The Military Secretary's Division deals with appointments, promotions, exchanges and retirements of officers.

The Advisory Council consisting of the Commander-in-Chief and the heads of the several staff departments, discusses all questions of importance under consideration at army headquarters, thus coördinating the work of the different divisions and keeping the representatives of government, the Secretaries to Government in the army, and Military Finance Departments, informed of the progress of these questions; it also enables the latter officers to represent the views of government at an early stage in the dealings with any question.



Under the Department of Military Supply are the following army departments: The Military Works Services, The Ordnance Department, Indian Medical Service, The Contracts and Registration Branch of the Supply and Transport Corps, The Army Remount Department, The Army Clothing Department, The Royal Indian Marine.

The Military Works Services deal with the construction and maintenance of all military works and buildings.

The Ordnance Department arranges for the supply to the army of all munitions of war and a large part of its equipment.

The Indian Medical Service is partly under the Home Department of the Government of India; the Department of Military Supply deals mainly with the administration of the military portion of the service, consisting of officers, assistant surgeons and hospital assistants.

The Contracts and Registration Branch of the Supply and Transport Corps deals with the contracts for the supply of and with the registration for war of transport animals.

The Army Remount Department supplies remounts to all British, and a few native, mounted units, and arranges for the importation of all horses and mules required; it has also charge of government breeding operations.

The Army Clothing Department supplies the army with clothing.

The Royal Indian Marines, under a director, who is usually an officer of the British navy, arranges for the sea transport required for the army. It is not an army service, and is placed under the Department of Military Supply for administrative convenience.

Appointments are made by selection, and all staff employments are tenable for three years, extensible for five years. It is with few exceptions a general rule that all staff employments are equally divided between officers of the British and Indian services. To qualify for staff employment an officer must be a Staff College graduate, or have qualified for promotion to major, and must have passed the higher standard examination in Hindustani. Certain appointments usually carry certain ranks; the appointment of Commander-in-



Chief carries rank of general; the command of the Northern, Eastern or Western command of the Burma division and the appointment of Chief of the Staff carries the rank of lieutenant general; command of a division, also appointment as Secretary to Government in the Army Department, as Adjutant General, as Quartermaster General, as Inspector General of Cavalry, Artillery or Volunteers, and as Director General of Military Works, Ordnance or Supply and Transport and twelve brigade commands carry the rank of major general. The following appointments qualify, if the recipient is a brevet colonel or a lieutenant colonel with three years' full pay service in that rank, for the rank of substantive colonel; Deputy Adjutant or Quartermaster General, Judge Advocate General, Deputy Secretary of Military Supply, Assistant Adjutant General or Quartermaster General, Military Secretary to the Viceroy or the Commander in Chief, Deputy Director General (or Inspector General) of Ordnance, Military Works or Supply and Transport, Chief Engineer (Military or Public Works) Commanding Royal Engineer of a division and Superintending Engineer, Public Works Department.

The rules for command of a British unit are similar to those in force at Home; the tenure of command of a native regiment is limited to five years, extensible to seven years.

Officers commanding regiments are responsible for the training of their officers except in subjects such as musketry, signalling, gymnastics and mounted infantry, transport and veterinary training, for which special classes are held. Officers have to pass technical examinations before promotion to lieutenant, captain and major respectively, and before obtaining command of a regiment.

Entrance to the Staff Colleges at Camberley and Quetta (in temporary quarters now at Deolali) is gained by passing a competitive examination, or by obtaining a special nomination. No officer can compete unless recommended by the general officer under whom he is serving, and who has personally to test his capabilities as likely to make an efficient staff officer. He can compete for Camberley or Quetta at his option, as the syllabus and method of instruction in both

colleges only differ to the extent necessitated by climatic and local circumstances. At the Indian Staff College there is a commandant (a brigadier general) with six military professors usually lieutenant colonels or colonels, who form the teaching staff. The course lasts two years, and comprises theoretical and practical training in all military subjects. Twenty-four students are admitted annually, of whom approximately one-third are from the British service and two-thirds from the Indian Army. On graduating finally, an officer is entitled to the letters "P. S. C." after his name, and is qualified for staff employ. The actual nature of the staff work on which he is employed subsequently depends upon the report made upon his capabilities by the commandant and professors of the Indian Staff College. An officer at the Indian Staff College draws full Indian regimental pay and allowances; at Camberley, British pay of rank and allowances.

British officers with native regiments, in staff appointments open to the Indian army, and in army departments and civil employment to which engineer, artillery officers, medical officers have not necessarily to be appointed on their technical knowledge, are borne on one list called the Indian army. Although appointed primarily for military duty in India, any officer on this list can, at the option of the Governor-General in Council, be detailed for work of any nature.

A certain number of direct appointments to the Indian army are offered annually to candidates for commissions from the Royal Military College, Sandhurst, and are accepted usually by those passing out among the highest on the list. Officers appointed in this way are attached to a British regiment in India for one year before being appointed to a native regiment. Other vacancies are filled up by the appointment of officers volunteering from British regiments. No officer can leave a native regiment for staff, departmental or civil employment until he has three years' service and has passed the necessary examination in Hindustani and in professional subjects.

Promotion in the Indian army is regulated by a time scale. Unless an officer's promotion is accelerated or re-

tarded specially, he attains the rank of captain after nine, of major after eighteen, and of lieutenant colonel after twenty-six years' service, respectively. Accelerated promotion may be granted to a limited number of lieutenants and captains annually for good service, and to a major obtaining command of a regiment or an appointment on the staff which qualifies for the rank of colonel. Promotions to the rank of general are made entirely by selection; the establishment of these for the Indian army is: Generals, 3; lieutenant generals, 5; major generals, 22.

Officers appointed permanently to civil employ are struck off the roll of their regiments, and, after ten years' absence from military duty, are borne upon a supernumerary list, on which they can rise, under the time scale, to the rank of lieutenant general, but no higher. The pay of officers in the Indian army on military duty consists of pay of rank plus staff pay, except in the higher appointments where a consolidated salary is given. Pay of rank never varies, and is as follows (monthly rates): Lieutenant, 225 rupees;\* captain, 374 rupees; major, 640 rupees; lieutenant colonel or colonel, 827 rupees. Staff pay varies according to the nature of work on which an officer is employed; in a native cavalry regiment, it rises from 150 to 700 rupees; in a native infantry regiment, it rises from 100 to 600 rupees; and in staff employ, it rises from 200 to 1,000 rupees, till it reaches the consolidated scale, when an officer's pay and allowance can rise to the 4,500 rupees of a lieutenant general of a command, or the annual 100,000 rupees of the Commander-in-Chief.

Furlough to England up to a year, extensible to two years on urgent private affairs, is granted, if the officer's services can be spared, at any time in an officer's service; while thus absent, he draws special sterling rates of pay, which rise from £200 to £600 a year. If absent for more than two years from ill health, an officer is transferred to the temporary half-pay list. Pensions on retirement are granted after twenty years' service, and are as follows: After twenty years, £250; after twenty-five years, £365; after twenty-six years, £348; after twenty-eight years, £500; after

\*A rupee is worth about 32 cents.

thirty-two years, £700; while major generals, lieutenant generals and generals get pensions of £800, £900, and £1,000 a year, respectively.

British corps in India are organized on the same lines as those of the same branch serving at home, while their armament, equipment, and clothing, are identical, except for the differences necessitated by climatic conditions. Each unit has an establishment of native followers, such as lascars, bhistis, sweepers, syces, etc., and a proportion of these, as well as a limited number of officers' private native servants, accompanies the unit on field service.

Artillery batteries and ammunition columns have a certain number of enlisted native drivers; the number of these vary slightly in each kind of unit, but they are calculated on the principle that all "first line" vehicles should be manned by British drivers.

The strength of the different units is as follows:

	Officers.	N. C. O.'s and Men.	Total.
Cavalry regiment.....	29	598	627
R. H. A. or R. F. A. battery.....	5	157	162
Heavy battery.....	5	91	96
Howitzer battery.....	6	217	223
Mountain battery.....	6	141	147
Garrison artillery company.....	5	140	145
Infantry battalion.....	29	1,004	1,033

Although there is no objection to enlisting suitable men in India, practically all the recruitment and enlistment for the British forces in this country is carried out at home, under terms arranged by the War Office, who are responsible for keeping units up to proper strength. Units come to India under a regular system of reliefs and remain for about ten years if they are cavalry or artillery units, and about sixteen years if an infantry battalion. During this period the rank and file change frequently, as the average tour of service of the private soldier in India is a little over five years. While in India, all charges on account of these units are paid by the Indian government, who, in addition

pay the War Office a regular proportion of the cost to the latter of enlisting and training officers and men, and of the pensions, gratuities and other contingent expenses incurred by them.

In accordance with the recommendation of the Royal Commission in 1858, a definite proportion between the numbers of British and native troops is still maintained. Originally this proportion was one British to every two native soldiers in Bengal and to every three native soldiers in Madras and Bombay, respectively. The proportion now, taking into account reserve and auxiliary forces, is about one British to two and one-half native soldiers throughout India.

Native cavalry and infantry regiments are practically all organized on the class regiment or the class squadron or company system. This means in the first case that the whole regiment is composed of one class, *i. e.*, Sikhs, Dogras, Gurkhas, Rajputs, Hazaras, Moplahs, etc., and in the second case that every squadron or company is formed entirely of one class, though there may be, and generally are indeed in the infantry, more than one squadron or company of each class in one regiment. The reasons for this system are to a certain extent political, as tending to prevent any such formidable coalition against us as occurred in the Indian Mutiny; they are also on the grounds of efficiency, for it is found that the class system is popular and consequently attracts a better class of men; moreover, it creates a reasonable spirit of rivalry between units.

All other regiments have class companies or squadrons, even though called "sikhs," like the Fifty-third Sikhs, or "pathans," like the Fortieth Pathans.

Each cavalry regiment is organized in four squadrons, and has thirteen to fourteen British officers, in addition to a British medical officer, namely, a commandant, four squadron commanders (of whom one is second in command), an adjutant and seven to eight squadron officers. There are 625 natives of all ranks, including native officers; of the latter the risaldar major is the senior, and there are, usually, in addition, three risaldars and four ressaidars, each commanding a half squadron, and also nine jemadars; the non-commissioned

officers are called "daffadars," and the privates "sowars." All cavalry regiments, except the Twenty-sixth, Twenty-seventh and Twenty-eighth Light Cavalry, are what is termed *sillahdar* regiments. Broadly speaking, this means that every man contracts with the State for a fixed monthly payment for his own services, mounted and armed, and that, beyond this fixed monthly payment and the usual pensionary charges, the State incurs no pecuniary responsibility on his account. As a matter of fact, the State now supplies rifles and ammunition and gives compensation if a man's rations and his horse's food cost more than a certain sum.

Each infantry battalion is organized in four double companies (of two companies each) and has, usually, thirteen to fourteen British officers, in addition to a British medical officer; these are a commandant, four double company commanders (of whom one is second in command), an adjutant, a quartermaster, and six to seven double company officers. There are 912 natives of all ranks, including native officers; the latter are one subadar-major and seven subadars, each commanding a company, with eight jemadars; the non-commissioned officers are called "havildars" and "naicks," and the privates are called "sepoys."

A native mountain battery has six guns, and is divided into three sections. There are five British officers who belong to the Royal Garrison Artillery, and not to the Indian army, namely, one captain and four lieutenants; there are 135 native gunners, including native officers (of whom there are three), and non-commissioned officers and 234 native drivers, including non-commissioned officers.

A company of sappers and miners usually consists of two British officers and two non-commissioned officers of the Royal Engineers and 170 native ranks, including three native officers.

Recruiting staff officers are appointed for each of the principal classes and castes composing the native army, and recruiting is mainly conducted under their supervision, though many men are recruited through relatives and friends and join regiments direct.

Enlistment is for general service, within or outside British

territories, and beyond sea if necessary; the age of enlistment is usually sixteen to twenty-five, and the standard of height five feet seven inches; in ordinary times a man may claim his discharge after three years' service.

Commandants of native corps have considerable disciplinary powers, especially in the authority which empowers them to hold "summary" courts-martial, of which they alone constitute the court, although other officers are required to "attend" such a court-martial.

Native regiments move in relief every three or four years, and as a general rule are located in cantonments within reasonable distance of the area from which their men are recruited. Thus men recruited in the Punjab are generally stationed in a cantonment of one of the first three divisions (Peshawar, Rawalpindi and Lahore); men recruited in Rajputana, Central India, the United Provinces and Nepal in cantonments of the Meerut and Lucknow divisions; men recruited in the West of India and the Dekhan in cantonments of the Mhow and Poona divisions; and men recruited in Madras in cantonments of the Secunderabad division. At the same time all corps are liable to, and do serve in any part of India, and troops of all castes and classes are found serving on the frontiers, in Burma and in the colonial garrisons of Hong Kong, North China, Singapore and Ceylon. The principle of having local regiments for service in Burma, Baluchistan, and the Northwest frontier is gradually being discontinued and shortly the only localized regiments remaining will be those of Gurkhas.

Urdu (or Hindustani) is understood throughout the native army, although most classes have a language or dialect of their own, and British officers serving with native corps have, in addition to passing in Urdu, to pass a colloquial test in the language spoken by the majority of the men of their unit.

The pay of the infantry sepoy is nine rupees per month, and it raises, as he may get promotion, to 150 rupees a month of the Subadar Major. The cavalry sowar gets thirty-one rupees a month, and this amount rises to the 300 rupees a month of the Rissaldar-Major. All native soldiers



have to feed themselves out of their pay, but they receive compensation from the government when the cost of their food exceeds a certain limit. The cavalry sowar has also to feed his horse and to clothe and equip himself and his horse out of his pay, but he receives assistance from government in the provision of grass, and when the cost of grain exceeds a certain amount, and he is provided free with his rifle and ammunition. Extra pay, called good conduct pay, can be earned by the soldier, and rises from one to three rupees a month; in the case of the non-commissioned officer it is called good service pay and rises from one to four rupees a month.

Pensions after twenty one years' service, or if invalided after fifteen years' service, rise from four rupees a month for a private to thirty rupees a month for a Risaldar or Subadar-Major, and after thirty-two years' service from six to fifty rupees for the same ranks.

Pensions are also granted for wounds received on field service, and to the families of soldiers deceased during field operations or on foreign service.

It is open to all ranks of the native army to rise to the highest grade of native officer, and these on retirement receive the honorary rank of captain. Certain educational and technical military tests are required from candidates for promotion for the position of native officer is one of considerable responsibility. A certain percentage of commissions are given direct to native gentlemen who are recommended for these by the civil, and approved by the military authorities; before final confirmation in these appointments native gentlemen have to serve on probation for two years.

As in the case of the British service, the rank and file of the native army can earn a medal for long service with good conduct, while the native officer can earn the "Order of British India" for long, faithful and honorable service. For personal bravery there is an "Indian Order of Merit" in three classes. All of these medals and orders carry monetary allowances.

Most native units have a fixed establishment of reservists, to which men of over three years' service with the colors



and under thirty-two years of age may be transferred. The total sanctioned establishment of the reservists for the Indian army stands at present at about 30,000, but is being increased annually, until it shall reach a strength of 50,000.

Reservists are trained annually or biennially at fixed territorial centers, where their arms, equipments and clothing are stored. On mobilization, they are called upon to rejoin the colors at the depots of their former units (or of one of the linked units) as required. A reservist receives two rupees a month when away from the colors, or when not up for training.

*Artillery.*—Heavy batteries of artillery are armed generally with a breech-loading 5-inch gun; the horse and field artillery are being rearmed with the 13½ and 18½-pounder quick firing gun, respectively, and mountain batteries have a 10-pounder gun.

*Cavalry and Infantry.*—The cavalry and infantry have the short Lee-Metford magazine rifle with bandolier equipment. In addition the cavalry also carry a sword and lance, or a sword. Each regiment with a place in the field army has also two Maxim machine guns.

*Engineers.*—The corps of sappers and miners have railway, bridging, telegraph, balloon and other technical units, in addition to the usual engineer equipment. There are also twelve battalions of native pioneers, with special pioneer equipment for engineering work.

The ordinary clothing for British and native troops for the cold weather is serge; blue, red, green, or drab, according to the regimental pattern. Khaki drill is the field service and usual hot weather dress for all troops, while white drill is worn by British troops on ceremonial and church parades, etc. British troops are supplied with clothing and necessities by the Army Clothing Department, some of the clothing being made up regimentally; and the same agency supplies the native army, except the Sillahdar cavalry (who arrange for the whole of their clothing themselves), with serge clothing. For the rest of his clothing and necessities the native soldier (except in the Sillahdar cavalry) receives a fixed sum on enlistment as kit money, and afterwards an

annual half mounting allowance, arrangements being made regularly for the supply.

The British soldier always receives free rations in this country, and these are arranged for by the Supply and Transport Corps. The native soldier makes his own arrangements for food during peace time, and receives compensation from government if the cost of his ration exceeds a fixed monthly limit; on field service he receives free rations, which are arranged for by the Supply and Transport Corps.

There is no permanently organized body of mounted infantry in India. There are mounted infantry schools at Sialkote, Ambala, Poona, Fategarh, and Bangalore, and selected officers and men are sent from the different regiments to undergo courses of instruction at these schools. From these trained men, who do annual repetition courses, the necessary number of mounted infantry battalions would be formed on mobilization. A mounted infantry battalion is 500 to 600 strong, is organized in four companies, and has a machine gun section.

One of the greatest difficulties in the case of a big war will be to obtain a sufficient supply of officers for the Indian army. The formation of an Indian army reserve of officers was sanctioned in 1894, but the numbers have never exceeded forty or fifty. The reserve is open to any officials and private gentlemen in India who are not military officers, to certain retired military officers and to volunteers. They must be recommended by the general officer commanding the district in which they reside; they must have attained a certain degree of efficiency in military training, and they are all liable to military service in case of necessity. They undergo no training, and have merely to report their whereabouts twice a year.

The Judge Advocate General and his five assistants are the advisers of the army on military law matters. They are recruited from officers of the Indian army.

The Principal Medical Officer, His Majesty's forces in India, is usually an officer of the Royal Army Medical Corps, and is responsible, under the orders of the Commander-in-Chief, for all military medical arrangements in India. Mili-

tary medical duties in India are carried out by officers of the Royal Army Medical Corps and Indian Medical Service, by assistant surgeons and hospital assistants of the Indian Subordinate Medical Department, by nurses of Queen Alexandra's Military Nursing Service for India, by the Army Bearer Corps, and by the menial servants of the Army Hospital Corps, and those attached to native units.

Officers of the Royal Army Medical Corps, which is organized and administered under the orders of the Army Council come out to India on a five-years' tour of duty in regular relief. Their work in India is primarily the medical charge of British troops, although at times they have native troops also under their care. The fixed establishment of R. A. M. C. officers in India is at present 337. There is a Principal Medical Officer in each command and division and in some of the brigades; in the remainder of the brigades and in all stations, there is a Senior Medical Officer; all the military medical arrangements of the command, division, brigade or station are supervised by these officers acting under the orders of the general or other officer commanding. The appointments of Principal Medical Officer are divided equally between the Royal Army Medical Corps and the Indian Medical Service. Medical officers are not attached to British units during peace time, as all British troops are treated in station hospitals.

The Indian Medical Service is recruited for duty in India and is primarily a military service; but a very large number of its officers are permanently employed on purely civil duties, of whom a certain proportion, however, are available to return to military duty on mobilization if required. The head of the service is the Director General, Indian Medical Service, and his main duties are civil, for which purpose he is under the Home Department of the Government of India; but he is also the adviser of the Department of Military Supply on all questions relating to the military portions of the Indian Medical Service and the Indian Subordinate Medical Department. Each native cavalry regiment and infantry battalion has an officer of the Indian Medical Service who is in medical charge of the unit. In addition the Indian Medi-

cal Service maintains medical store depots at Calcutta, Madras, Bombay, Lahore and Rangoon for the supply of medical stores and equipment. All officers of the Indian Medical Service have at first to do a certain period of military duty, and in attaining the rank of colonel are liable to be recalled to military duty as Principal Medical Officers. The present strength of the Indian Medical Service is 727 officers.

The Indian Subordinate Medical Department is recruited and trained in India for duty in India with the army and in civil employ. The present establishment is 672 assistant surgeons and 932 hospital assistants, of whom large numbers are in civil employ, but of whom a certain proportion is available for military duty on mobilization, if required. The assistant surgeons in military employ do duty almost exclusively with British troops, while hospital assistants are almost always attached to navy units, of the smaller of whom they are sometimes in medical charge.

Queen Alexandra's Military Nursing Service for India is recruited in England for service in India and with British troops. The present establishment is four lady superintendents, fifteen senior nursing sisters and sixty-five nursing sisters. Nursing sisters come out under a five years' agreement which can be extended.

The Army Bearer Corps is organized in thirty-two companies of 100 kahars (or bearers) each under an assistant surgeon. There is a medical officer as staff officer of the Army Bearer Corps in each of the three commands, and there is one for the Secunderabad and Burma divisions whose duties are the administration and general superintendence of the bearer companies in his command. The main duty of the Bearer Corps is the carrying of dhoolis (a sort of covered stretcher carried by four men).

The Army Hospital Corps is organized in eleven companies, and comprises all the native menial servants on duty with British station hospitals, such as ward orderlies, cooks, bhistis, sweepers, dhobis, etc. Native units have establishments of these menials and have also one or two enlisted soldiers as ward orderlies.

Medical assistance to men in the fighting line (so to speak) is afforded by medical officers attached to units, British and native; unless a man's wound or ailment is trifling he is then sent to a field hospital; these are equipped with 100 beds each, and some accompany troops to the front while others remain at posts on the lines of communication; if a man requires lengthened treatment he is sent down to one of the nearest general hospitals, which are each equipped with 500 beds and are situated at the different advanced and other convenient bases; from here the man either returns to the front or is invalided to his home, proceeding possibly by hospital train and hospital ship.

The Supply and Transport Corps arranges at all times for the food of British troops and for forage for their horses, and for their bedding, barrack and hospital supplies and, on field service and in certain localities, it performs the same functions for native troops. The whole of the military transport maintained in peace is in its charge and it looks after the registration of transport animals. Part of the corps is under the Department of Military Supply with a Director General of Contracts and Registration at its head and separate staffs in each command and division. The remainder of the corps is under the Quartermaster General with an Inspector General at its head; with inspectors in each command; with an officer commanding divisional transport, and officer commanding divisional supply, and a divisional accounts officer in each division; and with various assistants at army and command headquarters and in divisions, brigades and stations. The present strength of the corps is 271 officers and 524 warrant and non-commissioned officers. The portion of the Supply and Transport Corps under the Department of Military Supply arranges for the contracts of supplies and for the registration of transport, while the part of the corps under the Quartermaster General arranges for the supply to troops of the various articles with which it deals, and is in charge of the transport maintained during peace. The greater part of the latter is organized in corps or cadres; the first are kept up at full strength and ready for mobilization by means of men from the transport reserve

and enlisted for the occasion and by animals hired or purchased on mobilization, a large number of which have been registered for this during peace.

The various cantonments in India are administered under the authority of the cantonment code by a cantonment committee composed of military officers. The secretaries to these committees are cantonment magistrates who are military officers; they are borne on a separate list and are held to be in civil employ. They carry out the orders of the cantonment committee and perform the judicial duties of the cantonment. Cantonment magistrates, of whom there are at present thirty-eight, with six assistant cantonment magistrates, are under the Quartermaster General in India, and to a certain extent (mainly in regard to their judicial duties) under local governments. The Quartermaster General has an inspecting officer of cantonments to assist him, who is selected usually from among the senior cantonment magistrates.

Officers of the Army Veterinary Corps come out to India for a tour of duty in the same way as officers of the Royal Army Medical Corps, and their duty lies principally with British troops. Some of them, however, are attached to the Army Remount Department and assist in supervising breeding operations. There is also a Civil Veterinary Service in India, appointments to which are made from the Army Veterinary Corps. Native veterinary assistants are trained at the veterinary colleges in India, and are appointed to native cavalry regiments, transport corps, etc., where their work is supervised by inspecting officers of the Army Veterinary Corps.

The Director General of Military Works, a major general in the army, is the head of the Royal Engineers in India. He is to a certain extent a staff officer, as he is technically adviser to the Commander-in-Chief, but he is responsible to the Department of Military Supply for the construction and maintenance of fortifications and other military works and buildings.

The present establishment of officers of the Military Works Services is 181, of whom fifteen are at present civilians

and the remainder Royal Engineers. There is no fixed scale for the subordinate establishment which, in addition to a large number of military warrant and non-commissioned officers, comprises a certain number of civilians. The officers are graded according to their seniority in the Corps of Royal Engineers, and the organization has been adjusted to suit the different army commands. In each command there is a chief engineer with a staff officer, in each division a commanding royal engineer, and in each independent brigade an assistant commanding royal engineer.

The present authorized strength of Royal Engineer officers in India is based on the war requirements of the army and is 392; the War Office, however, have not yet completed the establishment to this strength. There is no longer 'continuous service' for Royal Engineer officers in India, but they can qualify for an Indian pension after twenty years' service in this country.

They are eligible for appointments on the Army Staff in the Military Works Services, with the different corps of sappers and miners or submarine miners, and in the public works, survey and various other civil departments. Those in the public works and civil departments are liable to be recalled to military employ in case of war.

The Director-General of Ordnance, an officer of the rank of major general, is technical adviser to the Commander-in-Chief, but is responsible to the Department of Military Supply for the administration of the various arsenals and factories, from which the army and auxiliary forces (including Imperial Service Troops, Frontier Militia and Police) are supplied with all munitions of war and with most of their equipment. He has under his orders seventy-two officers (seconded from the Royal Artillery) and 500 warrant and non-commissioned officers in addition to many civilian engineers, mechanics, etc. The Ordnance Department is also responsible for the maintenance during peace, of the authorized reserves of munitions and stores of ordnance supply required for the field army. Under the Director-General there is an Inspector General of Factories who is responsible for the various manufacturing establishments, while the



arsenals are administered also under the orders of the Director-General, by Inspector Generals of whom there are two, namely, one for each of the northern and southern circles.

The Army Remount Department, which is under a director general, (an appointment which qualifies for the rank of colonel), with fourteen officers as superintendents, and eight veterinary officers, controls the breeding and the supply of horses for military purposes.

The Civil Veterinary Department controls horse, mule and donkey breeding outside the Punjab, Baluchistan, Sindh, the Bombay, Dekhan, and part of the United Provinces, inside which areas lies the work of the Army Remount Department. The principal source of supply of horses is at present Australia; Arabs are also imported, and likely young country-bred stock are bought and reared on runs. Mules for ordnance purposes are purchased locally, and mules for all purposes (to the extent that they cannot be purchased locally) are imported by the Army Remount Department. Mules for transport purposes are purchased locally by officers of the Supply and Transport Corps.

The Army Clothing Department has factories at Madras, Calcutta and Fategarh, and is under a director of army clothing, with five officers as assistants. The greater part of the clothing required for the army in peace time and all the special clothing required for the field army is manufactured in and supplied from these factories.

Grass and dairy farms are formed, or being formed, in all of the larger cantonments in India, under the control of generals commanding divisions. They supply grass to all government animals and dairy produce to all military services.

The Inspector General of Imperial Service Troops, a major general of the Indian army, has eleven inspecting officers, a deputy assistant adjutant general for musketry, an inspector of signalling, and eight assistant inspecting officers, all of the Indian army, to assist him in his work of superintendence of the training of the different Imperial Service Corps. The cost of this inspecting staff is paid by the Indian govern-



ment, which bears no other part of the cost of the Imperial Service Troops, for these are absolutely under their own rulers, in whose territories they are recruited. Their armament and equipment is practically identical with that of our own native army, to whom they approximate in efficiency.

Since the days of the Mutiny the volunteers have had little opportunity of seeing active service. A mounted rifle company of the Rangoon volunteers served in Upper Burma in 1885, a company of the Calcutta volunteers took part in the Manipur expedition of 1891, Lumsden's Horse (a corps raised from Indian Volunteer Corps) took part in the South African War, and various corps have at different times been called out for military duty in aid of the civil power. The existence of volunteers in India is especially necessary in view of the different nationalities by which we are surrounded, and their value would be evident in case of a general mobilization of the regular forces for operations across the frontier. In these circumstances the security of a large part of the European inhabitants in India would depend on the volunteers, on whom we should also rely to a large extent to maintain the railway communications throughout the country.

All Europeans and Eurasians in India are eligible to become volunteers. The advisability has been mooted more than once of making service in the volunteers compulsory for all government servants and also for all European and Eurasian residents, but the question has not been pressed; at present all railways employees who are eligible, have to serve in their Railway Volunteer Corps, and in case of a general mobilization it appears that the greater part of the European and Eurasian residents would come forward voluntarily to enroll themselves as volunteers. All volunteer corps are under the orders of the general officer commanding the divisional area in which they are located. Junior officers are elected regimentally, but promotion to Captain and to ranks above captain have to be recommended by the local government. The Inspector General of Volunteers, an officer of the rank of Major General, is a regular officer serving under the Adjutant General; he inspects all volunteer

corps throughout India and generally looks after the interests of the force. Adjutants and sergeant instructors are detailed from the regular army to the different corps, as at home.

There are eighty-two volunteer corps in India, among whom are the Calcutta, Rangoon, Karachi and Aden Port Defence or Naval Corps with artillery and submarine and electric engineers, fourteen light horse or mounted rifle corps and seven garrison artillery corps. Of the 32,156 volunteers in India on 1st of April, 1906, 30,378 were 'efficients.' There is also a small volunteer reserve formed in reserve companies which numbers about 1,600.

Volunteers are armed with the Lee-Metford magazine rifle, and the various rifle meetings held in India and at home testify to their proficiency with it.

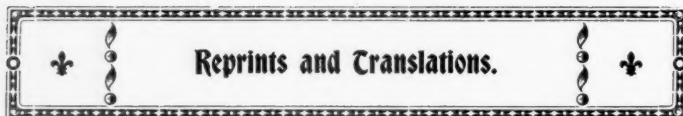
#### IMPERIAL CADET CORPS.

This corps, which was initiated by Lord Curzon, has its headquarters at Dehra Dun, and gives a military education and training for a period of two to three years to native noblemen. The numbers under training vary from twelve to twenty, and a certain number receive a commission in the British Army at the end of the course. There are at present four officers holding such commissions. Two are in command of corps of Imperial Service Troops and two are on the staffs of the major generals of divisions. There is a British commandant and a British adjutant to the corps.

Owing to the policy of withdrawing regular troops from across the frontier, the numbers of the frontier militia have recently been increased. During peace time they are under the orders of the local administrations (that is to say, the agent to the Governor-General in Baluchistan or the North-west Frontier Province), but when on military duty where regular troops are also employed, they come under the orders of the officer commanding the troops. They are officered by two or three British officers per battalion, they are armed with Martini Henry rifles, and they are equipped and trained on the same lines as the native army.

Nearly all the independent native states, whose number

is some 120, keep up bodies of armed retainers. The numbers of these forces vary, but they may be taken as aggregating approximately 90,000 to 100,000, of whom about three-quarters are infantry. They are of little military value for their armament, discipline and training are inferior except in Kashmir, Gwalior and Hyderabad. At the same time the 'personnel' in the states of the Punjab and Rajputana is generally excellent. In certain circumstances these so-called armies might prove a menace to the internal peace of the country.



GENERAL MISCHTSCHENKO'S SECOND RAID,  
MAY, 1905.

BY CAPTAIN F. AUBERT, GENERAL STAFF AUSTRIAN ARMY.\*

DURING the pause in the operations following the battle of Mukden, the cavalry of the Russian right wing was concentrated near Siaotschensy. There it covered the front of the Second Manchurian army which was then entrenching itself between the Dun-Liaoho and the railroad. Two regiments were on reconnaissance service between the Dun-Liaoho and the Mongolian frontier. On May 12th General Mischtschenko received orders to report at the headquarters of the Second army where General Baron Kaulbars ordered him to start operations on a large scale against the Japanese communications to the rear. General Mischtschenko protested against that. He stated that the condition of his horses precluded large operations; that a raid would prove of value only should the offensive be resumed by either the Japanese or the Russians; that the Japanese left flank was well secured, etc., etc. General Kaulbars would not listen to these objections and stated that he had reliable information that the Japanese intended to attack very soon; he further explained that the raid was absolutely necessary to delay the Japanese a few days and allow the concentration of the Russian forces. He issued then the following orders to General Mischtschenko:

\*Translated from *Kavalleristische Monatshefte*, July, 1908, by Sergeant Harry Bell, Staff College Detachment.

"The enemy is concentrating in front of our position and has his forces so posted in the sector Kaiping—Fakumyn—Tsintsiatun that he can easily envelop our right wing. To us it is of the utmost importance to delay the hostile attack and to gain time to draw up our reinforcements expected to reach us between the 18th of May and the 2d of June. A means to delay the hostile offensive is offered by a raid against the Japanese communications to the rear, to destroy their stores and supplies and to interrupt traffic on roads and highways. The principal lines of communications of the western group of the Japanese army at the present time are the Liaoho from Inkou to Tuntsiakon, the Inkou-Sinmintin railroad and the highways from Sinmintin to Fakuyan, Kaiping and Tjeling. Large quantities of supplies are at Inkou, Sinmintin and Fakumyn. It will be your task to advance with at least two cavalry divisions, in any case with not less than one and one-half divisions, against the rear of the hostile west group and to delay the commencement of hostile operations by interrupting the hostile communications, especially the railroad."

The destruction of the railroad running to Sinmintin was later countermanded in a telegram as that road was neutral. This neutrality, however, caused the Japanese but little concern; for since the victory at Mukden they used it as their main line of supply and they also connected it with Mukden by a temporary field railroad.

On May 15th General Mischtschenko concentrated the following forces for the raid at Liaojanwopa:

Caucasian Cossack Division, twenty-three Sotnias and four guns.

Ural Cossack Brigade, eleven Sotnias.

Transbaikal Cossack Brigade, nine Sotnias and two guns, detachment of the Caucasian Cavalry Brigade, two Sotnias, two machine guns; a total of forty-five sotnias, six guns and two machine guns with about 5,500 sabers.

To increase the mobility of this detachment two guns and five ammunition wagons only, with 218 rounds per gun were allowed each battery; each trooper carried 250 rounds of ammunition and fifty additional rounds for each carbine

were carried on pack animals; but two days' hard bread and ten days' tea and sugar were carried; everything else necessary for subsisting the command was expected to be secured in the country. Each sotnia was supplied with two litters (to be carried by horses) and the hospital corps detachment had seventeen carts; no other vehicles, except the ammunition wagons of the artillery, were taken along.

The horses were entirely unsuited for an extensive raid; those of the Ural and Transbaikal Cossack regiments were totally played out by hard service and insufficient nourishment; the well mounted Caucasian Cossack Division had just completed a five weeks railroad journey, the horses were not yet used to the new forage and partly played out by two marches of about one hundred versts on an exceedingly bad road, partly through swamps and partly through sand; it reached the right wing of the army on May 14th and had not had sufficient rest for a new undertaking.

At 8 A. M., May 17th, the start was made in two columns. The left column, composed of the Ural-Transbaikal Cossack division and the Caucasian cavalry, twenty-two sotnias, two guns and two machine guns, marched for the present to Kaiping, with orders to turn to the west six versts from that town. The right column—twenty-three sotnias and four guns—was ordered to march from two to five versts west of the left column. All engagements with the enemy to be avoided; hostile fortified places to be left unmolested and circumvented; but in case of unavoidable contact in the open, especially with cavalry, the attack should be vigorously pushed—these were the general instructions given.

The dense screen thrown out by the Japanese retreated slowly in front of the advancing Russian advance guard; the right column did not encounter any Japanese during its march; the left column encountered the strongly fortified village Tschaubaopa, and circumvented it towards the west. Two Japanese dragoon squadrons were encountered, and retreated at a trot before the attacking Ural Cossacks. The march was about to be resumed when a message was received that the left flank guard had received fire from a village at about 200 yards distance, and lost eight Cossacks, whose

bodies had not been recovered. The officer delivering this report was told by General Mischtschenko: "I do not desire to hear of such an occurrence again; take two or three sotnias, or as many as necessary, recover the bodies, and take care that not a single Cossack again falls into the hands of the Japanese." Two new sotnias were sent to the flank guard, further losses were sustained, and the entire march was stopped to secure the wounded.

After the corps had covered forty five versts—and that at a walk—it bivouacked in and around Lidiaopa for the night. Its advance had been discovered at the very start by the Japanese. Therefore there was then no hope of material success in the raid except by increasing the rate of travel. In the bivouac the corps secured itself by a double line of patrols and pickets, so that daily eight to ten sotnias had to be utilized for outpost duties.

On May 18th the march was resumed across country in two columns, in the general direction halfway between Fakumyn and Kaiping, six reconnoitering squadrons preceding the columns by one hour.

Reports from the left column soon made it clear that the Japanese were reconnoitering the advance and were concentrating their infantry in all haste. The reconnoitering sotnias in front succeeded in surprising a small Japanese detachment in its bivouac, capturing a store house filled with rice and clothing; a lot of maps were also captured and ought to have been extremely useful, as the Russians possessed but a very incomplete and inaccurate map of the country to be traversed, but there was not a single Japanese interpreter with the Russians, and the maps could not be read.

One verst west of Santaitsy the vanguard of the left column was fired on. A short fire fight ensued, but soon the Japanese dragoon squadron evacuated the village, and the Russians did not succeed in overtaking it. In the village some vehicles were captured, and also a field safe. Shortly thereafter the left flank guard was attacked by a detachment of all arms; more hostile infantry was reported to be in front. Therefore General Mischtschenko decided to debouch in a

southwesterly direction. Bivouac was made at Tschandi-aopa. The distance covered that day was about thirty-five versts, again at a walk. During this march the right column encountered but weak infantry detachments and captured a few trains and supplies.

At 7 A. M., May 19th, the advance was resumed in a general southerly direction. The divisions changed places, so that the Caucasian Cossack division formed now the left column. After covering forty six versts, the corps, without a serious engagement, reached the town Tindiafanschin, and bivouacked there for the night.

Results of reconnaissance up to then were :

1. West of the Siminkin-Fakumyn road there were no Japanese forces.
2. Kaiping and Fakumyn were strongly held by the Seventh Japanese Division ; in addition, infantry detachments secured the road between these places by holding the villages and the most difficult parts of the road.
3. There was no traffic on the Simintin-Fakumyn road, as erroneously believed to be the case.
4. The Liaoho formed the line of communications from Simintin to Schifusy, from there the Takudiasa-Kakumyn road.

General Mischtschenko then decided to advance on the 20th in an easterly direction to interrupt communication between Mukden and Fakumyn, south of Takudiasa. This line of communication was protected by a chain of hills, the commanding points of which (hills and villages) being about three to five versts distant from the road, but the covered and broken terrain did not only facilitate a covered approach on these points, but also allowed their circumvention. On the other hand, there was great danger of riding right into the hostile position and receiving fire from different directions. If the Russian corps desired to carry out the task which its commander had set himself, then it would have to pierce the hostile screen with all possible forces to reach the line of communications.

Without any apparent reason the left column remained behind of and lost touch with the right column ; the latter,



north of Tschinsianpao, encountered a strong hostile infantry position, tried to go around it to the south, but was also fired on from Tschinsianpao. In spite of this, there was still a possibility to break through to the line of communications, for the advance guard regiment (the First Tschitinski Cossack regiment) continued, on its own initiative, the march in a southeasterly direction, reached the line of communications, captured and destroyed a Japanese supply column of 800 vehicles. The patrols of this regiment advanced as far as to Schifusy on the Liaoho, but being without support the regiment was forced to retreat by a Japanese infantry battalion.

In the meantime the right column had attacked Tschinsianpao by a few dismounted sotnias, captured the village which was defended by two companies of the Forty-ninth Japanese Infantry regiment, taking part of the garrison prisoners, the rest escaping. But after the village had been captured and the remainder of the right column came up, the success was not utilized for breaking through the Japanese lines to the east, but the corps continued in a southerly direction and became engaged at the villages of Donsiasa and Tasintun, where it sustained severe losses through two of the Caucasian regiments, which had so far not been engaged, making a mounted charge on infantry behind stone walls. The characteristic in these engagements, which were without any general interest, was faulty leadership—frittering away of forces, keeping strong forces in reserve, so that the engagements were costly in time and blood.

It appears that a continuation of the march in a southeasterly direction was abandoned during these engagements, for even before Tasintun was taken the main forces were put in motion in a southwesterly direction towards Siaofanschin. The taking of Tasintun and the capture of another company of the Forty-ninth Japanese Infantry was the independent work of certain sotnia leaders who did not want to abandon the task after it had been commenced.

The cavalry corps went into bivouac in and around Siaofanschin and Mischtschenko called a council of war to ascertain whether or not enough had been accomplished and

whether it would not be best to return. As reasons for the return were given the small supply of ammunition (artillery) on hand, the obstruction of the movement by having to carry along so many wounded and prisoners, and the impossibility by being so burdened, to break through the fortified line towards the east. This latter was no reason at all, for why were not the wounded sent back under sufficient guard and the prisoners driven off into different directions? Another reason for the return was given, that is, that the cavalry regiments would be required and ought to be fresh in the forthcoming decisive battles of the Russian army. The council coincided with Mischtschenko's views.

On May 21st a reconnaissance party of three sotnias was sent from Siaofanschin towards Sinmintin; it found that the country was free of the enemy up to three or four versts north of Sinmintin, where the Japanese Fifty-fourth Infantry regiment held a strongly fortified position; the detachment then sent a few patrols towards the east and returned to the corps.

The corps took up the return march on the 21st of May via Tindiaopa and was not molested by the enemy on that or the succeeding day. On the evening of the 22d, Chinese reports were received stating that the entire line from Kaiping via Sinluntschuan to the Mongolian frontier was strongly occupied by Japanese detachments with artillery. These reports, besides causing apprehension of more losses, indicated a possible interference with the neutrality of the Mongols; also the march through the Mongolian sands was not relished. But the reports were exaggerated. On the 23d the corps circumvented "on neutral terrain," the Japanese left flank and reached on May 24th the starting point Liajanwopa, after having covered the 300 versts at a walk. The losses of the corps amounted to three officers and thirty-five men killed, eleven officers and 138 men wounded. The animals were completely exhausted and did not recuperate from that raid until the end of the war, although but little was required of them after the raid.

On May 26th General Linewitsch, Commander-in-Chief,

telegraphed to General Kaulbars, commanding the Second Army, as follows:

"I am in receipt of your despatch reporting the return of Adjutant General Mischtschenko with his brave Cossacks. I am much pleased therewith and congratulate you, General Mischtschenko, and all his men on the complete and glorious results achieved. I thank you personally for the inception of the raid and thank General Mischtschenko and his brave detachment for his gallant and well executed ride. I will bring the matter to his majesty's attention without delay."

To this telegram General Kaulbars added: "I also congratulate you with all my heart."

Of what consisted this complete and "glorious result" for which the leader and the troops were thanked in such an effusive manner?

Not considering the captured rice and tea sacks, the burning of vehicles, the temporary interruption of telephone and telegraph lines, the Russians consider that the cavalry corps carried out its task completely its task to ascertain if the Japanese intended to take up the offensive. The Russians also state that General Nogi, who commanded the Japanese left wing, could not think of a forward movement as long as the cavalry corps operated in his rear and interfered with his lines of communications.

To this we object: The cavalry troops had touched but slightly the area covered by General Nogi's army and did not gain any insight into the conditions of that army. The line of communications was reached only by accident, and thanks to the initiative of a gallant regimental commander, the weak guard which the Japanese had detailed for its protection was amply sufficient to cause the Russians to retreat. And in case the line of communications between Schifusy and Faku-myn had been destroyed, then the Japanese could have utilized the Liaoho as such.

The reasons for the miscarriage of the entire undertaking are to be found in the slow movements of the cavalry corps, which made it impossible to avoid contact with hostile mixed detachments. And, further, the absence of initiative and energy on the part of the supreme commander is very

apparent when compared with that of the Japanese line of communications detachments; it was also a great mistake to engage in useless combats with weak detachments. Finally, however, we must not overlook the fact that the cavalry corps had a task which was impossible from the very start, for, as above stated, the Liaojan-Mukden-Tjeling Railroad, the main line of communications for the Japanese army, was not at all vulnerable, as far as the Russian raiding force was concerned, and the Liaoho but little so.

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### CAVALRY ORGANIZATION.

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From *The Broad Arrow*.

UPON no subject has such a wealth of criticism or such widespread controversy arisen, as upon the uses and tactical employment of cavalry in the field. Scarcely any two people are entirely agreed. The trouble is that no two people can find a common starting point from which to commence a discussion. As the question of the employment of cavalry is closely bound up with that of its organization, these must be considered together. The former naturally divides itself into two distinct parts, firstly, its strategical use, and secondly, its tactical employment. In considering first of all its strategical use, we can only attempt to come to any decision by accepting the principles of its employment as at present laid down, and then examining how its present organization is suitable, in the light of experience gained in the last two wars.

Before the South African War nearly every Continental nation, including ourselves, was influenced by the opinions of the great German General Staff. What they said upon military questions was always accepted. As a consequence, their views upon the employment of cavalry were those we all considered to be correct. Cavalry reconnoitering fifty and sixty miles to the front were to gain all the information

we could possibly want. Within seven or eight hours of the outbreak of a continental war, the headquarter staff was to be informed of the strength, movements, and probable intentions of the enemy. His mobilization was to be interrupted, railways destroyed, and telegraph lines cut, almost before he had realized he was at war. The collecting of this information, we were told, would probably be preceded by a great cavalry battle. Further, this umbrella-like screen was to prevent at the same time an enemy from gaining any information on similar points.

We spoke with wonder of the German and French frontier divisions, which were always ready to take the field at a moment's notice. As the war proceeded they were to cooperate on the battlefield, both by mounted and dismounted action. They were to clinch a victory and cover a retreat. They were to seize the strategical points and act against lines of communication. In a word, they were to be ever moving, and yet remain always mobile. It was with these guiding ideas that our cavalry went to South Africa. No cavalry officer, however, believed that men recruited from a closely populated and highly civilized country, and mounted as they were after the first month or two, on Argentine corks, would be able at once to best the Boer riflemen, mounted on salted ponies. But the street corner critic did. The opinion of the latter was summed up in the lament, "How are the mighty fallen and the weapons of war perished." Every cavalry officer will agree that the results obtained by the cavalry in South Africa were disappointing. The information they were able to obtain was practically nil. Individually the trooper was no match for the Boer in cunning and self-reliance. He could therefore not be allowed to work alone or in pairs, as the Boer generally knew how and where to lay up for and capture him. We very wisely, however, recognized that the circumstances were altogether exceptional, and that, if we continued to give our attention to training in scout duties, there was no reason to suppose we were in any way inferior, or should be able to do less, than any continental cavalry we might be engaged against.

To sum up the tactical lessons, we practically said to the cavalryman: "We doubt whether your lance is any use, but we will leave you a few. Your sword used to be your most important weapon, your carbine only of secondary value. We will now give you a rifle, which will be your first weapon, your sword the second." In other words, we made him two-thirds mounted infantryman and one-third a cavalryman. We can now see what the Russo-Japanese War had to say to all this, and then how the divisional organization will be suited to the future use of cavalry.

The Germans told us our strategical deductions were correct, and when the war broke out we were told to watch the Russian cavalry. We should see that used in large masses it would break up communications, and that dispersed over great areas it would gain all the information required. The Russian cavalry then, highly trained in most cases, and with a world of military traditions and past deeds to give them confidence, commenced to reconnoiter according to sealed pattern. They met a few dejected troops of Japanese cavalry, badly mounted, bad riders, and bad horsemasters. These immediately bolted, and the Russian cavalry, agreeing that this was the game as it ought to be played, advanced to gain information. Unluckily a little further on they met half a company of Japanese infantry, and were immediately brought to a standstill. Concentrating a little they managed to push round its flanks, when they met a larger force of infantry supported by one or two guns, and they could get no further. On the other hand, the Japanese seemed to know everything, though they had apparently never pierced or driven in the Russian screen. A continental cavalry had met for the first time a mixed screen, and the elaborate spy system of the Japanese. There can be no question as to which was most useful, or which gained the most information. Part of the principal function of large bodies of cavalry was gone. A few Japanese spies and an officer's patrol or two had gained more information, and a few companies of infantry had prevented more being gained, than the elaborate system of reconnaissance and screening of great divisions. Can we expect any greater results from large bodies

of cavalry used in masses in European warfare if opposed by such a screen?

Take the function now of attacking hostile lines of communications, and compare Mishtchenko's great raid with 6,000 men organized in divisions to Colonel Nagamuna's with two squadrons. One could only remain out 100 hours, and during this time only covered 110 miles. It was unutterably slow, and accomplished nothing. The other was out for two months, covered over 1,000 miles, destroyed the railway six or seven times, caused the Russians to detach two brigades from their fighting line to hunt them, and generally got on their nerves in the most effectual manner. From a strategical point of view, therefore, the weight of evidence is against the use of large bodies of cavalry.

Turning to the best organization of cavalry for tactical purposes, it seems as difficult to justify the existence of divisions as it is in regard to its strategical uses. It is unnecessary to refer to mounted battle formations as there appears to be no doubt that the attack in three lines is the best, and that, therefore, the organization of the regiment in three service squadrons is suitable. It seems, however, very doubtful whether a cavalry division and suitable ground for its mounted action will often be found in the same spot. In some armies it has, however, been decided that information can best be obtained by small patrols and spies, and that dismounted action is the all-important function of cavalry in battle. It will probably be best to examine the action of cavalry at Mukden in order to discover whether it must necessarily be organized in divisions for this purpose. One of the chief reasons for Kouropatkin's defeat at Mukden was that his cavalry gave him no information regarding Nogi's flank movement towards Sinmintin. His cavalry ought to have been watching his right flank, which was *en l'air* in the valley of the Liao. He had at his disposal some five divisions of this arm. Probably less than one could have obtained the information required. To a certain extent, as has been shown above, the smaller the cavalry patrols, the more information are they likely to obtain. An officer's patrol can remain concealed where a brigade certainly cannot, and



it is seldom the business of a reconnoiterer to fight. Even had the Russians adopted the fan-like formation of the Germans for this reconnaissance a brigade would have been amply sufficient for the object in hand. They certainly would not have gained so much information as spies or patrols, but they would have gained some.

It has been said above, that when opposed to the modern mixed screen part of one of the strategical functions of cavalry is unattainable. That is to say, as it cannot pierce the screen it cannot obtain information as to the strength of a movement whose direction it may detect. But it can ascertain that a movement of an unknown strength is in progress. It is not all that is required, but it is something. It certainly seems that so large an organization as a division was not required even in this case, and had Kouropatkin detached a brigade forming part of a division there would have been a certain derangement in organization which would tend to show that organization to be unnecessary.

It is becoming more and more apparent, as the length of battle fronts increases, that a mobile reserve in the hands of the Commander-in-Chief is of paramount importance. Nobody can foretell with certainty, when holding a front of fifty or sixty miles, where the enemy's decisive attack will develop. If we have only infantry in reserve, wherever we place them they will nearly always be two days' march from any threatened point in the line. Their help will in nearly every case arrive too late. If Kouropatkin had had a force of cavalry in reserve he might have saved Kaulbars on his right from changing front to the west. Nogi's enveloping movement might have been arrested, at any rate until the long-suffering First Siberian Corps, which marched continually but never fought, had been given time to intercept him. The battle might have been saved. But though it must be granted that a large proportion of the reserve should consist of mounted troops it is no argument in favor of the divisional organization. Two self-contained brigades are more easily got under way and handled, than a division. It may not always be necessary to use a whole division, and with us who only possess one, it will seldom be



possible to do so. The Japanese suffered from a dearth of cavalry, not from having organized what they had in brigades. It seems, therefore, with the evidence before us, that the very purpose for which we have organized a cavalry division is now unattainable. Incidentally it may be noted that this was again proved in this year's French maneuvers. No other duty, strategical or tactical, which can be assigned to this arm, requires so large and unwieldy an organization.

## THE USE OF MACHINE GUNS WITH CAVALRY.\*

BY MAJOR GENERAL MARCUS V. CZERLIEN, AUSTRO-HUNGARIAN ARMY.

THE machine gun has been in frequent use in at least two protracted wars in which it has had opportunity to demonstrate its worth. For our cavalry it is still a novelty and our personal experiences are not so easily replaced by those of others; therefore our peace maneuvers should serve for the accumulation of such experiments.

With this in view we shall take the last year's grand maneuvers of our First and Second Corps in Silesia as furnishing a good opportunity for a few brief remarks concerning the new war material under consideration during the momentary instances its uses were plainly perceptible.

The descriptions that we refer to of events occurring at that time are not sufficient to illuminate the progress of an entire episode; therefore we will confine ourselves to the following details only, which came under our observation during the employment of the reserve detachment of the Second and Third Cavalry Division on August 30th of last year (1906).

The detachment consisted of two squadrons of the Fifteenth Dragoons, one machine gun detachment, and an automobile mounting one Maxim machine gun; and this

\*Translated from the *Kavalleristische Monatshefte* (August-September) 1907, by First Lieutenant Frederick J. Herman, Ninth U. S. Cavalry, for the Second Division, General Staff.

force had the duty of serving not only as the reserves for the scouting detachments and information patrols, but was assigned to screening duty and to block the line of the Stonawka between Hnojnik and Wolowetz. The duty was, therefore, decidedly defensive.

In the description of the action of the Seventh Cavalry Division in the November number of this *Journal* we find that this command received information towards noon of August 30th, that the road defile near Nieder-trzanowitz was occupied by two or three squadrons of the Fifteenth Dragoons and a machine gun detachment, and were preparing shelters there. The report was rather accurate and the detachment actually spent the night at the place where the enemy learned of their preparations. That the detachment was not surprised here must be charged to the management of the maneuver, as the application for permission to effect a surprise was not answered. Should one question us if such application was necessary we could only reply in the negative, as the 30th of August, the day for the acquisition of information was also that of minor warfare when surprises, ambuscades, etc., by day or night, as opportunity offered, could not have been excluded; on the contrary one must take these as a matter of course and arrange ones plans accordingly, as they belong most eminently to the war training of the troops. The Germans had night maneuvers with their cavalry during the present year (1907) and we will be obliged to do likewise.

In order to determine if a surprise has succeeded it is sufficient if the attacking party has approached the object of the surprise to within 200 or 300 paces without being fired upon and has given the signal "attack" or "storm" (charge); then it will be readily seen to what extent the attacked party is prepared to meet the surprise. This is the basis of the decision of the umpire who must accompany the attack. More cannot be done without provoking an impossible situation. But how will one develop the troop for modern war without becoming familiar with the frictions that one must reckon with in nightly undertakings? In former centuries night operations occurred more frequently; at Hochkirch

we won a battle at night; at Podul, in known terrain, we did not.

In 1866, as a young captain of the General Staff, I was on duty with the bridge-head commando in Floridsdorf, and was in command of the observation post in Work No. 2 on Bisam Hill garrisoned by a weak battalion of the Twenty-fourth Regiment of Infantry. On the 19th of July, at about 5:00 o'clock in the afternoon, a terrible storm raged and one could not see for ten paces to the front; soon thereafter information was received in Work No. 2 from Work No. 1 at Langenzersdorf that the Prussians had entered Kornauberg. This was the same bad afternoon that the horses of nine cavalry regiments in Prater had stampeded on account of the storm. As under such circumstances an observation from Bisam Hill appeared impracticable, and as I did not wish to await what might follow like a mouse in a trap, I descended to Langenzersdorf, where the major of a dragoon squadron informed me that the Prussians had withdrawn from Kornauberg. If I desired to see anything I would have to go forward; so requesting a horse and an orderly I rode toward the enemy as far as Stockerau, which had also been evacuated. Toward 7 o'clock in the evening I found here the local mayor in his office and received from him the information that the two squadrons of the Death-head Hussars that had advanced as far as Kornauberg had retreated to Sirndorf and lodged themselves in the castle there without any disposition for security. I hastened back with this information and found before Langenzersdorf our Jäger (riflemen) on outpost, returned the horses and hastened to Work No. 2 from where I sent a telegraphic report to the bridge-head headquarters and suggested a surprise for the careless Death-head Hussars. For some time I received no reply, but after a while was advised by the Chief of Staff of the bridge-head commando that for such work as this no troops were to be had, as the troops needed their night's rest. Will such views be maintained for the future?

I have already stated that the duty of this detachment of the Second and Third Cavalry Divisions was purely defensive. But it appears that the blocking of the line of the

Stonawka on the 31st of August was not considered necessary any longer, for, according to the version of this maneuver in *Streffleurs Magazine* the detachment on this day took up a position about 1,800 paces in advance on the road toward Teschen with the machine gun detachment; and another with two squadrons 1,000 paces to the south of that of the machine gun detachment on the ridge of Ober-Zukan. The automobile, had on the day before, undertaken a successful reconnaissance, and appears not to have returned to the detachment as the enemy on this day advanced toward the line of the Stonawka from Teschen in several columns, the detachment was obliged to retire behind this line without having delayed him materially.

This would have been accomplished sooner if the crossings of the Stonawka had been occupied and held, than by an array in open terrain visible at a great distance.

According to this description, the detachment, instead of entering the woods, occupied a second position farther behind the Stonawka at the north corner of the woods, eastwardly of the hamlet Fifejdy, in open terrain, and was here attacked by the Twelfth Dragoons; the two squadrons were defeated, the "machine gun detachment got into a difficult situation and was ruled out of action by the umpire."

As a matter of fact, the principal point in the matter is not stated here, namely, what constituted the "difficult situation." If the detachment desired to take a second position—which was not a part of its assigned duty, as it was much too weak to take up the fight with the advancing division—it would have done better, perhaps, to occupy the eastern edge of the forest, near Fifejdy, with dismounted sharpshooters on both sides of the northern opening, with the machine guns posted near the opening; then the catastrophe would not have happened, and the Twelfth Dragoon Regiment would have gotten into some difficulty itself, as it would hardly have permitted itself to be led into a fire action in open terrain and within easy range of the horse batteries of the Third Cavalry Division. In connection with this second position, the detachment commander also had some excuse himself, as his orders contained this paragraph: "Before

strong forces of the enemy, the supporting detachments will retire upon their line of march and hold the corresponding cut-off on the Holczina." This disposition could only hold good for the 30th of August, as on that day the Holczina lay before the front of the Third Cavalry Division, but not on the 31st, on which day the Holczina cut-off was out of all consideration, as it then lay behind the place of assemblage of the Third Cavalry Division, near Toschonowitz. It could not occur.

It seems, however, that \* \* \* the machine gun detachment had been firing upon the Twelfth Dragoon Regiment for ten minutes while the latter was coming down the slope, before it was attacked and taken by the latter. The fire effect of the machine guns against so large a target as a cavalry regiment in column would in such time have been considerable, as the four machine guns could in this time have fired 16,000 cartridges, which, almost without exception, would have reached the head of the column, which, owing to the many fallen horses, could have advanced no farther; but that a regiment so decimated could take up the fight with the fresh squadrons, and in the fire of the hostile horse batteries, is doubtful. This matter would be different had the regiment deployed a portion of its strength to attack the machine gun detachment in extended order, or had dismounted a half squadron and attacked by fire action from good cover, for the purpose of drawing its fire; but no such attacks in close order can succeed in actual warfare.

In time of peace, when the effect of its fire is not felt, and when the machine gun detachment is in position, under cover, or is masked, and one is not aware of the presence of the guns, it is very easy to imagine that one is not under fire, although in this instance this could not be the case, as at the time the machine gun detachment could have had absolutely no other target in its immediate front than the Twelfth Dragoon Regiment.

The introduction of the heliograph flash to indicate targets fired upon during peace maneuvers may perhaps be as necessary for the machine gun detachment as for the artillery.

It is stated upon good authority that a Russian machine gun detachment during the war in Manchuria inflicted heavy losses upon the Japanese during a considerable period of time without being discovered by the latter. As this was finally accomplished by the Japanese, the detachment was annihilated in a few minutes. Machine gun detachments will, therefore, in war always take positions under good cover. For this reason they are not usually observed in peace maneuvers, and their fire from such positions should at least be indicated by a flag, which, while disclosing the positions of the guns, guarantees due regard for their fire effect.

The two squadrons of the Reserve Detachment No. 2, according to the description of the action of the Seventh Cavalry Division heretofore referred to, had already begun their retreat while the machine guns were limbering up, without even an attack upon the head of the Twelfth Dragoon Regiment; then crossing the Stonawka, by which the limbering and withdrawal of the machine gun detachment would have been protected, although at such times the machine gun detachment is defenseless and most urgently needs such protection. As such attack or resistance was not offered, the Twelfth Dragoons very properly and promptly seized their opportunity and captured the machine guns, which would not have been an easy task had the Reserve Detachment No. 2 taken up the fight with any degree of energy.

According to an article in the *Army Friend* (The maneuvers of the First and Second Corps in 1996), the retreat of the reserve detachment, No. 2 was the result of an order of the commandant of the Third Cavalry Division, who desired to assemble his scattered detachments prior to the decisive movement, which can be readily understood. But the order was received by the detachment at an unfavorable moment, or if this was not the case, its execution was too long delayed. In the first case it must have occurred to the commandant of the detachment No. 2, that such order, in view of the close proximity of the enemy could only be carried out by sacrificing a part of his command, which is hardly to be expected of a righteous cavalryman, and it is not understood that the order of the division commander so intended.

Otherwise the commandant, who must have observed the advance of the Twelfth Dragoons, should have begun the retreat before detachments of the enemy had crossed the Stonawka, if he did not desire to attack.

But in order to appreciate the tactical relation of the machine gun detachments in connection with the cavalry, it would be necessary to know exactly the time required to unlimber and prepare for action and to limber up and move off, as otherwise a safe time calculation can not easily be made.

We observed that the machine gun detachment of the Third Cavalry Division, notwithstanding its strong support was taken; whereas, that of the Seventh Cavalry Division whose support was only one squadron, was able to remain in effective action throughout the day; on the following maneuver days they were brought repeatedly and without mishap into action, but never so isolated as the horse battery division of the Seventh Cavalry Division on the 31st of August.

I have permitted myself occasionally, while in command of troops in detachment exercises, to allow the artillery to remain in position without support, only, however, to be able to make a stronger demonstration to the front but in such cases there were no scouting or reconnaissance detachments to fear. But it is otherwise with greater events, for then artillery and machine gun detachments cannot be left without support, or the reconnaissance detachments of the enemy will be given opportunities far beyond their reasonable expectations.

In the foregoing remarks I have confined myself to the description referred to without, however, guaranteeing that the progress of such events was exactly as described; therefore I cannot enter into a discussion of details connected therewith which in themselves would also have some value.



## TRANSLATOR'S NOTE.

The foregoing article emphasizes the importance, above all, of the necessity on the part of the higher military commanders of a better understanding of the tactical relations of the machine guns to the other arms, as well as their protection, while in position or in going into or from positions for action, by appropriate supports. As the furnishing of such supports will always cause a weakening of the forces to which the machine guns themselves, at least in our service, are adjuncts, such service could perhaps be best rendered by the personnel of the machine gun detachments, which should be sufficiently numerous for the purpose.

In this connection it may be pertinent to remark that a combat and observation patrol, consisting of a non-commissioned officer, one horseholder, and two sharpshooters armed each with a Danish machine gun, sent to either or both flanks of the position of the machine gun detachment would give the fire effect of a dismounted squadron of European cavalry or of a half company of European infantry.

In the foregoing article the necessity for deployment of large bodies of troops advancing upon machine guns in position is made apparent; in actual service the losses of an European cavalry division advancing in close order upon a four-gun battery of automatic machine guns anywhere within 2,000 yards would be frightful.

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THE ACTION OF THE FUTURE.

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*From The Broad Arrow.*

THE next great war, and it may break out sooner than we either desire or deserve, will see considerable changes in the manner of attack and defense. All arms will find their parts in the drama modified. We need not insist on our readers that a campaign of the description of the Boer War—unless in the case of a second war against the same



foe—will not again take place. The deadly effect of the rifle in the hands of men trained to shoot for their living every day, will not again be a factor for consideration. The extreme mobility of an enemy accustomed to ride and to move over a vast country without artificial obstacles will not, in any European or Asiatic war, have to be taken into account.

The armies of the future will be made up of men untrained to war. The intelligence of the individual will be infinitely greater than of yore, and this fact will profoundly modify the course of war. The nation that, acknowledging the importance of this fact, will give all its energies in time of peace to developing the moral force of its naval and military forces, will carry off the palms of victory. This means, in a word, that the connection between officer and man must be rendered more real, more intimate. Demos has taken the scepter in hand. Discipline and democracy are not exactly harmonious notes. It will be the tact and firmness of the leader, combined with the superior intelligence of the rank and file, that will and must combine to find a solution of this apparently difficult problem. With us there should be less trouble than with most nations in solving the equation. In our army there has always been a paternal relation between the commanding officer and the men under his command. It is the company, squadron, or even troop leader, who must with us fully recognize how the fight of the future depends upon his intelligence and upon his exertions.

Cavalry will in the future, when employed against cavalry, find the *ultima ratio* in cold steel. There are, however, many instances, especially in the great plains of Europe, where the value of mounted men will depend as much upon their eyes and their ears, as upon their arms. It has been the fashion amongst some whose thoughts are vague, to declare that the day of cavalry is past. On the contrary the sun is rising on its brilliant future. The cavalry division of to-morrow, we may almost say to-day, will be a vast, self-contained agglomeration of human beings with one mind; that of its chief. There will be in its ranks carpenters, woodmen, blacksmiths, bridge builders, photographers, balloon-

ists, telegraphists and telephonists, swordsmen, soldiers and riflemen. For it must be remembered that whilst it is necessary to retain the force of serried impact as a reserve for breaking through at certain times; the enveloping duties of reconnaissance will fall more especially to the horseman. He it will be who will be charged with the duties of connecting the great units that spread over a vast extent of country, must when necessary combine in a frontal or a flank attack. Then will be the time when cavalry may hold strong bodies of the enemy, in order to allow time to the infantry to make its great turning movements. Something of this sort was attempted by the Russians on the only occasion when they nearly attained success in the Manchurian campaign. The reason that they failed to achieve victory was because the whole plan of operations was disjointed, and that central impulsion was wanting. On the 25th of January, 1905, General Gripenberg's army, consisting of the Eighth and Tenth Army Corps, and Mishtchenko's cavalry attacked Chenchiepu and Heikautai. On the Japanese side the force of the attack fell on two divisions and a brigade of cavalry. On the 25th the Cossacks appeared in a cloud in front of the Wukiatse defenses, and opened fire at a distance of 1,500 to 1,600 meters. This is an illustration of the nature of cavalry attack as it may often be developed. It is not too much to say that "riflemen" must be included in a cavalry division. The Cossacks, evidently relying on their numbers, pushed on, but the Japanese received them with such a rain of bullets that they retired. It was calculated that twenty sotnias with twelve guns were here temporarily repulsed by a few squadrons of Colonel Homda's cavalry. In spite, however, of the heroic resistance of the Japanese the Cossacks advanced and got round them. By 6 P. M., on the 27th of January, the Russians had practically turned the Japanese flank in the direction of Hsuietsho, and were advancing towards Chukiawoping, and the line of the Taitseho. It was only by the most strenuous exertions that the Fifth (Hiroshima) Division protected the Eighth, that held on bravely to Samapao and Sonchiepao. The last attack made by the Russians on these villages was at 11 P. M. It seems probable had General Kaul-

bars, on General Gripenberg's left, offered hearty assistance to the latter, that the Fifth and Eighth Japanese Divisions would have been driven back, and the line of the Shaho, and even the railway at Yentai Station, might have fallen into Russian hands. The idea of the great cavalry "holding" attack on the Japanese left was good in its inception. The attack failed because it merely forced the Japanese troops from a position that was not assaulted by the comrades of the cavalry.

It is plain that not only will great exertions be necessary to instruct men in the art of war during times of peace, but that each arm will have to learn something of the principles that govern the attack in the other. At the commencement of a campaign in olden days it was possible to "make" soldiers in the little affairs that preceded the great battles of the war. In the future masses of men who have received but little training will be plunged, without preparation, into situations where causes of demoralization will arise that may result in annihilation. As the French General Tournier truly says: "Men must be taught and warned against the influences that will act against them morally, either in action or on the line of march, such as partial retreats, losses that may be borne without flinching, and above all, the moral effect of explosive projectiles." Lord Roberts, in his speech at the Liverpool Chamber of Commerce, says almost the same thing in other words. He warns us that if war should come upon us in Europe, or on our Indian frontier, we should have to deal with very different foes, with foes trained and armed in millions, from the Boers, who were neither highly trained nor numerous. He tells us plainly that we have not got an army of sufficient weight to turn the scales decisively against any foe that might disturb that *status quo* in Europe, as vital to our position now as it was in the days of Pitt. Without going into the question of universal training, we notice that the general gist of his lordship's remarks is that the moral is as necessary as the physical training of the soldier. In the days of democracy it must be that the citizen himself submits voluntarily to that training, for the natural instinct of the free man is to resent all command of restraint. It is pre-

cisely because our natural instincts are those that are necessary to conquer, that we insist on the value of moral training. It is naturally the instinct of any creature, human or brute, to avoid danger. No man will out of pure gladness of heart place himself near an exploding shell. This brings us to the action of artillery in action which will be next considered.

There is much to be said about the action of artillery, but we may first consider the part that will have to be played by the engineer. This rôle is so important, and the Corps of Royal Engineers is so relatively weak in numbers, that it seems a waste of energy and money to transfer its headquarters from Chatham. We are more concerned at present with the highly-developed state of field fortification, and the intimate alliance now existing between the engineer and infantryman. In the articles written by an officer of the Thirtieth (Russian) Division, copious extracts of which have appeared in our pages, this matter is insisted upon. Ignorant and untrained infantry, and this is exactly what the mass of our infantry, not Regulars, must necessarily be, needs instruction from the engineer. For that purpose we advocate if possible permanent coöperation in peace time between the two arms. The great battles in Manchuria have shown us that in the future, as cavalry will veil with a screen, engineers will protect the front of great armies with a wall, covering miles of ground. A glance at the maps of the battles will illustrate our meaning. At Liaoyang not only was the town itself carefully defended by semi-permanent intrenchments, but the whole Russian position was strongly intrenched. Trenches ran all along Shoushan, and the high *kaoliang* or millet, had been cut down in front of them. These trenches were of the character of field works of normal types, namely, infantry trenches for riflemen kneeling, with field shelters and traverses, while gun pits were prepared for artillery with shelters against plunging fire. On Shoushan more solid works were constructed, wire entanglements, *trous de loup*, and fougasses, presented serious obstacles to assault.

The defences around the town of Liaoyang consisted of eleven closed works, with parapets for the delivery of infantry fire, while traverses and bombproofs gave additional security. In front of these were deep ditches, wire entanglements, military pits, and fougasses, or mines charged with stones, were placed in front of the ditches. For a distance of 800 paces the *kaoliang* had been cut down half-way through, and woven and interlaced, like a hedge in England is treated by a hedger. This constituted a new and effective obstacle. The whole fronts of the Tenth and Seventeenth Russian Army Corps were protected by lines of earthworks. It is the engineer who can teach other arms to intelligently adapt and improve existing natural obstacles. The precise manner of doing this varies according to the climate, vegetation, and character of the ground. It would be presumptuous on our part to indicate the exact manner in which natural obstacles are to be improved. We have to inculcate principles, not to explain details. We plead for the provision of technical *matériel* by the authorities in time of peace in sufficient quantity. We doubt neither the brain power nor the bravery of the Royal Engineers.

Although we cannot insist too strongly on the necessity of training men during peace time, we also warn all ranks that overwork is detrimental. It is not only prejudicial to the men's health, but it destroys interest, affects the moral character of the men, and thus injures discipline. The training of our field artillery has been in the past left to the battery commanders, who have right well carried out both the letter and spirit of their orders. It is not news to our gunners to hear that the long range and rapidity of the modern gun, the hitherto anathematised division of the battery, the capacity of the gun for operating in cramped localities, the small effect produced even by excellent weapons in good hands upon earthworks or invisible objects, are the various cases to which they must look to regulate the effects of their fire. A truth of this sort can hardly be too often told. The Japanese showed us in Manchuria that artillery can do nothing without a thoroughly well-organized observation service. The whole front, it may be as long as from

Aldershot to Salisbury, or Dublin to Athlone, must be scouted by artillery officers or gunners gleaning information, which they must gather from other branches of the service, as well as collect themselves and transmit for information. The Staffs must remember to forward all information that they receive on to the commanding Royal Artillery officers. Commanders of batteries or brigade division must of necessity be often far from their commands in their endeavors to see as much of the ground as is possible in order to develop their initiative. In such cases they will only be able to communicate with them by telephone. The object of the artillery fight, when it begins, is to hold the hostile artillery under constant threat of a fire of all its own quick-firing guns, and thus to prevent it firing on moving objects or on the infantry.

It seems to us that field artillery would be immensely strengthened if the guns were provided with shields. The Russian reports agree in stating that it is impossible to annihilate gunners who are under shelter in trenches or behind shields, and that a battery on which fire is directed is compelled to cease firing and to seek such shelter. A judicious organization of observation makes it possible to retain batteries to act against hostile infantry. It will be no longer necessary, as we have before pointed out, to mass the artillery in the long continuous lines of Worth or Gravelotte. The enemy, we must remember, has efficient observers provided with Zeiss glasses, as of course we have, and will at once discover such long lines and inundate them with a rain of shrapnel. In fact the object of field artillery is now to kill men and horses, not to destroy walls or to set villages on fire, although these may be concomitant results of its fire. The last question we can now consider is the vexed one of changes of position in order to approach the objective. With long-range guns we think these should be few in number. A gun does not hit harder at 2,500 than at 3,500 yards. But it may be necessary to change positions in order to see. The advancing batteries should be taken from the reserve so that the other batteries may continue their fire. Of course small battery changes of position must be carried out

by hand work. It would be suicidal to bring up the teams for this purpose. Defense consists in invisibility, offence in protracted fire. It is only when the enemy has given way that all the guns must gallop forward to occupy the conquered position.

### COMPOSITION OF THE CAVALRY DIVISION.\*

THE last few wars have furnished a number of experiences on which to base a correct estimate of the required strength and composition of the cavalry division. The times are past when the main role of the cavalry division was to ride to the attack in battle. It is true that to-day as heretofore the profession and spirit of cavalry will call for any sacrifice, in which the cavalry seeks its duty and honor, to throw itself, in the heat of battle, on the hostile infantry and artillery if the situation requires it. That part of the duties of cavalry, therefore, remains unchanged and unquestioned, but other additional duties are required of it to-day. Through reconnaissance far to the front and on the flanks, the cavalry of an army has become more than ever the eyes of that army. It drives the hostile reconnaissance organizations, *i. e.*, the enemy's cavalry, from the field and thereby opens a road for itself for the purpose of gaining an unobstructed view of the enemy's situation, while through the destruction of the hostile cavalry, it robs the opponent of his means of reconnaissance. But still higher duties are set for the present day cavalry of an army. Bold raids against the flanks and rear of the hostile army, before and during the battle; against the enemy's lines of communications, and the obstruction and destruction of the same; the most manifold technical labors (crossing of streams, destruction of all manner of things, and establishment of telegraph and telephone lines); all these duties require the highest ability on the

\*Translated from the *Austrian Cavalry Monthly* for September, 1908. by Sergeant Harry Bell, Corps of Engineers, U. S. Army.



part of the cavalry division. The saber, which heretofore was its only decisive arm, has been supplemented by the carbine, which latter has become of more and more importance and now almost indispensable on account of its accuracy and long range, and without it the cavalry would be helpless in many situations.

If we analyze the essential qualities which a cavalry division, organized in accordance with up-to-date views, must possess we find three elements:

1. Mobility, which will assure and allow independence;
2. Strong fire-power, assuring vigorous and quick effect when cavalry support is required in battle, and
3. Necessary technical means (bridge equipage; supplies to construct telegraph and telephone lines; ammunition, etc.)

During the Franco-Prussian War in 1870-71, the German cavalry divisions were of different strength, from sixteen to thirty-six squadrons. Consequently their achievements were varied. As soon as a battle ensued, the batteries attached to the cavalry divisions were invariably detached and sent to join the artillery lines. Not all of the cavalry was armed with carbines, and it was consequently often doomed to inaction; and if we take this fact alone into consideration we find that many sins of omission charged to the cavalry division, which seem strange to us, are accounted for thereby. Technical engineering work was at that time in its infancy; especially the throwing of bridges and building of telegraph lines. What a change has been wrought since 1871! In the Boer War the British came to consider the fire action as the main duty of the cavalry division; General French had attached to his division several companies of mounted infantry and numerous batteries. In the Russo-Japanese War, we see on the Russian side (just remember Mischtschenko's raid), helpless, cumbersome cavalry masses, loaded down with all manner of impedimenta, hindering their movements. Opposed to them were small Japanese cavalry divisions, numerically weak, to which as a rule but one battery was attached, and in a few isolated cases some machine guns. The Japanese divisions were quick and mobile, but weak. It has repeatedly been pointed out and needs no discussion here that



several *strong* Japanese cavalry divisions, suitably reinforced by artillery and machine guns, could have done excellent service by throwing themselves on the defeated Russian army, which retreated, totally routed, to the north after the battle of Mukden.

What should be the proper strength and composition of a cavalry division?

Opinions differ widely. Some maintain: If we attach still more artillery and machine guns to the cavalry then it will still more assume the role of protector to these latter and lose its value as a mounted arm. And if we load it down still more with ammunition and thereby lay more stress on the dismounted fire action, then we might just as well abolish the cavalry altogether and form it into a sort of mounted infantry. Other opinions hold: Cavalry, even the most courageous and best, imbued with the proper cavalry spirit and ready to sacrifice itself in attack, is of no value if without sufficient fire-power.

It is true that an attack on shattered or weakened infantry may succeed, but the cost of success would be so great in lives lost that that cavalry would be useless for a long time to come. A few platoons of infantry, ably commanded by an energetic leader and holding a defensive position, are fully able to delay an entire cavalry division for some time and cause great losses in case the cavalry is not supported by its batteries throwing shrapnel and thereby clearing a road. We should not forget that the force of an attack by cavalry in a dismounted engagement must not be overestimated; else actual war may bring us sore disappointments. The addition of artillery, of course very mobile artillery, is necessary for the cavalry of an army. The old complaint that every large dismounted engagement has seriously effected the mobility of cavalry, is generally correct. Just remember what a hindrance the led horses of men killed or disabled are in a dismounted fight. Therefore, we must acknowledge the correctness of the opinion that the fire-power of the cavalry must be replaced or at least supplemented through the addition of mobile machine guns. To attach infantry detachments can only occasionally be of use, for how will infantry keep

up with cavalry? The latter would either have to wait for the infantry, thereby losing its main element, mobility, or the infantry would be separated from the cavalry, unable to keep up, and the entire object of the combination would be lost. We have tried to overcome the difficulty with cyclists; in France a plan is afoot to attach cyclist companies and even battalions to the cavalry division. This may be correct and useful in certain situations, but may also prove to be a hindrance and inconvenience; for instance, where there are no good roads or the weather is wet, then the cyclist company would be a hindrance and possibly more so than a company of infantry. So-called mounted infantry has its proper place only in colonial wars, where operations are carried on in a small way, and will therefore not be considered here. It is too slow to keep up with the cavalry. Cavalry, if well trained in fire discipline, can perform just as efficient service in fire action as mounted infantry.

From this it follows that an addition of horse artillery and machine guns within proper limits is not detrimental to the mounted duties of a cavalry division. To do without these auxiliary arms would be to abandon a force or power which the cavalry of to-day absolutely needs to make it equal to its difficult and manifold duties.

How strong should the cavalry division be in *cavalry* alone? All European powers, except France, which seems to be of different opinion, have decided, and correctly, to have three brigades of two regiments each. This has the advantage that, in battle, one brigade can be held intact at the disposition of the division commander. In two brigades of three regiments each this advantage would be lost and the brigade formation dissolved. It has been proposed to increase the strength of the cavalry divisions to four brigades, and this proposal was based on the fact that the present day utilization of the cavalry divisions carries in its wake the detailing of detachments for manifold duties, such as sending out reconnaissance squadrons, detaching men for message and relay service, for signal detachments and telegraph patrols, guarding the regimental baggage, etc. Even if economically used, several squadrons may be lost in this man-

ner. Therefore the proposal to overcome this difficulty by increasing the brigades from three to four and to have the division thereby strong enough for all emergencies is not entirely unjustified.

On the other hand, the reason for making the cavalry division not stronger than three brigades is clear. The larger the command, the more difficult it is to quarter and ration the same. In the war of 1866, the massing of large bodies of cavalry on the Prussian side was most unsatisfactory, for there were very few villages which offered sufficient quarters; the cavalry had to bivouac and it is an acknowledged fact that continuous bivouacing plays havoc with horseflesh. If we have to separate the cavalry division into widely scattered villages, time and force is lost in concentrating it for resuming the march and the degree of readiness for battle is materially lessened thereby.\*

It is well known that the cavalry division can carry but a limited amount of forage; German regulations prescribe the amount at one-third of a day's ration, which is to be immediately replenished by requisition on the country. To supplement and complete its forage, the cavalry division has to fall back on the country. Even if we admit that in most cases the cavalry divisions do not operate in exhausted parts of the country, it is clear that the difficulties of securing forage are increased the more troops are massed together. It will be the exception rather than the rule that forage columns can accompany a cavalry division.

We must also not lose sight of the fact that a cavalry division with its impedimenta has a marching depth of about 6,750 yards. Each addition lengthens this depth and consequently increases the time required for deployment for battle, a fact well worthy of consideration. The cavalry action is swift. The leader needs his regiments quickly. Who would therefore lengthen the column and increase the time required for deployment? We therefore maintain that three brigades of two regiments is the correct number; four brigades permissible.

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\*This argument has no weight in our service, where our cavalry are never quartered in towns or villages.—*Translator*.

How much *artillery* should be attached to the cavalry division? Two batteries of six guns or three batteries of four guns seem to be about right. Large or extensive artillery battles are not within the province of this artillery; it has not sufficient ammunition for that. The number of guns should not be increased, otherwise the whole would become heavy and cumbersome. Short and weighty action before attack; strong fire on a defile blocked by the enemy; hastening from one fire position to another in the pursuit, shoulder to shoulder with the cavalry—those are the duties expected by the cavalry division of its horse batteries. Three small batteries of four guns are preferable to two batteries of six guns. It is true that the number of guns remain the same, twelve, but there is a material difference. The smaller battery is quicker and can therefore be utilized to better advantage; it can be more readily attached to a brigade and sent off on a special mission, and the artillery battalion commander will still have two intact batteries at his disposal. That each of the batteries of four guns must have as much ammunition as the battery of six guns is self evident. The light ammunition column must be composed of the necessary number of vehicles in that regard and will have to carry a third more ammunition than at present. The cavalry division will be separated from the main body of the army for days at a time; how can replenishment of ammunition take place if the division has no means therefor? It has to take along a light ammunition column, even if it is cumbersome.

A battalion of machine guns will be sufficient, but according to our view, this battalion should be composed of no more platoons than there are brigades in the division; each machine gun platoon to consist of two guns and two ammunition carts; this would give six machine guns to the three brigade and eight to the four brigade division. Our present machine-gun platoons must be replaced by platoons the entire personnel of which is mounted. Whatever the artillery has to have should not be withheld from the machine guns, therefore the light ammunition column will also have to carry reserve ammunition for the machine guns.

We do not favor the *permanent* attachment of cyclists to a cavalry division. But this does not mean that for certain purposes the cyclists of an infantry division or of an army corps should not be concentrated and temporarily attached to the cavalry division, provided there are good roads.

We will now consider the question of technicalities. In this we start from two points of view :

1. Avoid every unnecessary loading down of horse and man.
2. Provide everything absolutely necessary to make the division as effective and as independent as possible.

First, the engineer detachment. We hold that only trained men, *i. e.*, men belonging to engineer organizations, should be utilized therefor, not cavalymen who may have had some instruction in engineering. There are undoubtedly many such, but they belong primarily to the *squadron*. The main task of the engineer detachment is to perform certain definite and merely technical duties, for instance thorough demolition. It must be able to follow the cavalry everywhere and that quickly. We have experimented on a large scale in this respect. At one time engineer detachments were transported on vehicles, at another on bicycles; one is as little suited to war conditions as the other. Only well mounted troops should be attached to the cavalry division; therefore the engineers should be well mounted. Training of engineers should be in such manner that picked men may be attached to the cavalry in their second year of service and there learn to ride in addition to being drilled in their own technical profession. We need not expect fancy or trick riding of them, it will suffice if they can ride at trot and gallop and know how to care for a horse. The number of men thus trained need not be large.

Bridge train equipment (steel pontons), telegraph patrols, field signal detachments and sanitary detachments in our cavalry service are suitable for all purposes demanded of them in war. These matters we will, therefore, not touch on; they could not be better.

Does the cavalry division need special provision trains?

The German Field Service Regulations (par. 475) says on this point:

"The cavalry of an army (this means the cavalry division), as long as it is in front or on the flanks of the army, will in most cases have to rely on the country for its provisions. To carry them, supply columns formed of requisitioned vehicles with good teams are to be recommended. Oats and other forage should be carried on them mainly. Army headquarters may attach to the cavalry provision columns consisting of one-horse carts loaded with oats mainly."

We hold that the German method, to leave the arrangement of this matter to general headquarters according to its judgment, is correct. A permanent assignment of provision columns to a cavalry division is superfluous, is but an encumbrance which very often will hinder the mobility and interfere with its duties.

To conclude, we will consider the following. Nearly all armies have at their disposal a special divisional cavalry, which, as in the German army, consists of four squadrons. Where the divisional cavalry is numerically weak, as for instance in France, the army corps has a separate cavalry organization, the corps cavalry brigade. It is clear that not all infantry divisions and army corps can utilize their cavalry to its fullest extent when operations are on a large scale. In any case the bodies on the flanks and those in the first line will have definite and far-reaching duties, while those in the center and in the second line may have difficulty in finding suitable employment for their cavalry. Would it not in that case be better to concentrate the unemployed cavalry and attach it to the cavalry divisions for the time being for special duties? War at the present day cannot be carried on by keeping to hard and fast rules and regulations. General headquarters will only then utilize the forces at its command at the proper time and place if it endeavors in each single case to bring the *mass* into play, at the decisive point, and with a definite object in view. The same is true in utilizing the cavalry. It follows, therefore, that we

should strive to make the organization of our army cavalry a flexible, pliant one. Cavalry divisions sufficiently strong and provided with everything necessary, but not overloaded, not clumsy, and helpless and, in case of need, reinforced by the temporary addition of cavalry not required elsewhere by the army corps. Conduct of war is, as Moltke says, a system of assistance of one body by another. So with the cavalry. It is but necessary that clearness and consistency, firm will and decisive action dominate this system; it will then lead to success.

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### CAVALRY PATROLS IN RECONNAISSANCE AGAINST ARTILLERY.\*

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FROM THE GERMAN OF MAJOR GENERAL V. WINDHEIM.

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CAVALRY should know that an important branch of its reconnaissance duty is the ascertaining of the strength of the hostile artillery, and the details of its several positions which is of so much importance to our artillery. Very often a cavalry patrol, which has kept in close touch with the enemy, will have an *earlier* opportunity to gain an insight (from the flank) into the measures taken by the hostile artillery than the artillery patrols sent forward for that purpose, and the manner in which artillery is utilized to-day has made such latter reconnaissance more and more difficult.

Up to the present time reports sent in by the cavalry during maneuvers have been very deficient in giving information concerning the hostile artillery, if they contained any mention at all of it, and consequently were of little use in this respect to the commanding general or to the artillery commander. This branch of the reconnaissance service has been neglected in our cavalry training; and *practical* schooling in this is the only remedy. It can be done during the

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preliminary practice of the artillery regiments and brigades which precede the annual maneuvers.

A trial made this year has proven very satisfactory. Three lieutenants and three non-commissioned officers were detailed from each cavalry regiment of my brigade for that purpose, and a major of one of the cavalry regiments was assigned as instructor.

Before the commencement of the preliminary exercises this major received a copy of the general situation and a short synopsis of the exercises to be carried out each day; this from the artillery regimental and brigade commanders. Based on these, he had to sketch out short situations (of the enemy) for his command and inaugurate with his six officers and six non-commissioned officers proper reconnaissance against the hostile artillery positions. The command was as a rule, quartered together in one village; the village used for quarters being distinct and separate from those occupied by the artillery and designated in advance of the exercise, due regard being had to their corresponding to the tactical situation.

It was made the main duty of the instructor to keep a sharp eye on the patrols and cause them to conduct their operations as they would in actual war. The hostile artillery positions were at all times assumed to be operating in connection with the other arms. Inasmuch as in the artillery exercises, the other arms were not actually represented by flags, hostile infantry was always assumed to be in front and on the flanks of the artillery positions. And this was the main reason why an experienced higher ranking officer was detailed as instructor. It was part of his duty to impart proper information to the patrol leaders during the ride to the front and give instructions at the points chosen for actual observation. Stress was laid on the importance of having these chosen points at a considerable distance from the enemy, as would be the case in war, and the observations were taken through field-glasses only. Sufficient instruction was to be imparted to the patrols to not only observe the hostile positions from the front but also from the flanks.



In these exercises it was not of so much importance to carry out extensive patrol rides, nor advancing the different patrols at large intervals or distances, as the main purpose was to give officers and non-commissioned officers an opportunity to learn how to carry out a proper reconnaissance against hostile artillery positions and to teach them the proper method of sending back reports. Neither was there any objection made against having all or several patrols close together or even all of them at one and the same point of observation, where in actual war but one patrol would have halted. This was done to give the instructor a better opportunity to oversee the action of the patrols.

Both officers and non-commissioned officers were required to write down the results of the reconnaissance on message blanks; the number of messages sent and the time when sent was left to the discretion of the patrol leaders. All messages were criticised and discussed by the instructor and submitted the next day to the artillery commander for review.

The day before the beginning of the exercises the leader instructed the officers and non-commissioned officers in the following points, viz:

1. All *detailed* information concerning the hostile artillery increases the value of the messages for the commanding general as well as for the artillery commander. Such details are:

2. Front of the artillery position (points of compass or objects in the terrain).

3. What formation? (lurking position, position in readiness, firing position).

4. In the open? partly covered? entirely covered? (to be accurately designated by features in the terrain, such as windmills, hay or straw stacks, trees, farms, barns, etc.)

5. Where is the left, where the right flank of the position? (or report if but one flank can be seen).

6. Where are the limbers, where the caissons and ammunition wagons? (Formation.)

7. Howitzers or field guns?

8. How many batteries or guns have you counted? (Never report battallions or regiments.)

9. In larger commands, where are the reserves?

10. State if you perceive covering troops, and where.

11. In case of fire, give manner of fire, whether brisk or desultory.

12. In what manner and at what gait was change of position effected?

13. Take especial notice if single hostile batteries are used (especially during the advance of the hostile infantry.)

14. Observe that in changing position the pursuing artillery often takes the enemy's abandoned position.

15. Read the hostile flag signals.

16. Send in general report of the terrain (according to F. S. R.).

17. Report suitable points from which comparatively weak artillery can fire effectually on the hostile position from a flank.

18. Report to cavalry commander covered approach and favorable moment for attack.

19. A careful study of the map and terrain will give good information concerning the probable measures which the enemy may take and will lead to a correct guess of the position of his batteries.

20. Observation from high points (church steeples) is very advantageous.

21. Careful study as to when to send the first message and when the next.

22. Messages must be supplemented by sketches.

23. Messages must be sent in such time as to enable our artillery to profit therefrom. In general such messages must be sent at the gallop. They must be sent direct to the artillery commander.

24. If some especial important question can not be answered definitely in the first message, a notation thereof should appear nevertheless in the first message.

25. Reports as "hostile artillery officers are reconnoitering positions on the hills near X," or "with the six batteries reported behind hill at A are three batteries light

field howitzers" may be of much importance to the commanding general.

The exercises were held on four consecutive days, the last four of the preliminary artillery maneuvers. At the close the patrols rode direct to the maneuver quarters of their regiments. The start was made together; one officer was charged with bringing the participants to the ground, in the same manner as he would as a patrol leader in war. All participants were encouraged to report to the instructor whenever their opinions did not coincide with those of the patrol leader. The position of all participants at the respective points of observation had to be in accordance with conditions in war; points of observation which in actual war could not have been taken were excluded.

Experiences gained and observations made in these exercises are as follows:

1. The exercises were of inestimable value to the officers and non-commissioned officers. The importance of early and detailed reports was made manifest to them and they learned to observe, undisturbed, artillery positions and report them properly.

2. The officer detailed as instructor should be made thoroughly familiar, and that in good time, with the intended course of the artillery maneuvers, to enable him to sketch out proper situations and to lead the exercises in an effective manner.

3. During the ride it is not necessary for the instructor to play the rôle of enemy always. He can occasionally take the position of umpire.

4. As a rule, it has been found best to keep all participants together in one party to insure correct procedure.

5. It is recommended to attach a few horse-holders, so that the non-commissioned officers can observe through their field-glasses and write their messages undisturbed.

6. In these exercises it is best not to attach too great importance to the reconnoitering of the march of the artillery, because the reconnoitering non-commissioned officer is liable to let his imagination run away with him if other arms do not accompany the artillery. However, the exercises

should and must be made profitable by the instructor giving information as to proper reconnaissance against mixed detachments.

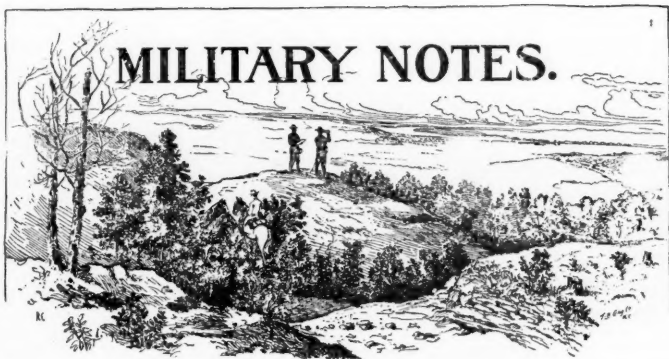
7. The flanks of the hostile position should never be designated as right or left, but rather in accordance with the points of the compass.

8. In maneuvers the artillery positions are more rapidly changed than will be the case in actual war. The patrol leader should be required to prepare his reports more quickly. We should also strive more and more to let a sketch take the place of a report.

9. Correct and detailed reconnaissance of artillery positions *from the front* will nowadays become more and more difficult. The presence of hostile artillery may often be ascertained only by the appearance of single observation posts.

10. It is exceedingly difficult and time-consuming to describe the hostile artillery positions so exact in accordance with features of, or objects in the terrain as to enable our artillery to effectively fire on them, using our report as a basis. The hasty searching for such terrain features and objects requires much practice and adeptness. They ought to lie within the artillery position itself or in its immediate vicinity. They also must be chosen in such manner that there can be no doubt about them on the part of our troops. If these terrain features are far from the position, when looked at by our troops, they are indistinct and may lead to mistakes.

11. The cost of carrying on these exercises is slight, as most of the cavalry regiments will already have begun their march to the maneuver grounds during the practice days of the artillery and consequently a part of the expenses can be charged to the general maneuver fund.



## THE MACHINE GUN PLATOON.

### *A Reply.*

IN the July number of this JOURNAL I published an account of a contest between two machine guns and a platoon of cavalry; the platoon of cavalry numbering twenty-two men, which is the strength of the Machine Gun Platoon.

The results of this test were as follows: The cavalry went into action quicker than the Machine Gun Platoon, and at a range of 1,000 yards fired as many shots in the same space of time and made four times as many hits on the "L" target.

The conclusion I drew from this test was that it indicated average results, and that under ordinary circumstances the fire of a platoon of cavalry would be superior in effectiveness of fire to the Machine Gun Platoon.

It was also concluded that the Machine Gun Platoon as compared with the platoon of cavalry costs more, is more of an impediment to free movement, is slower in getting into action, is more liable to get out of order or break down in

action, and is more exposed to hostile fire. That a single bullet would wreck a machine gun, and that two bullets placed properly would put the entire platoon out of action.

These conclusions have been attacked, but I have seen little in the arguments of my opponents to change my opinions given above.

The following additional objections can be made to the machine gun detachment.

1. Its individual strength is unavailable for many of the more important duties of the cavalryman, such as sentry duty, outpost duty, scouting, reconnoitering.

2. In action, it is claimed that its nerves are the nerves of a machine, and therefore, much firmer than the nerves of a soldier, resulting in more accuracy of fire. But it can be shown that its nerves are the nerves of its gunner, who on account of the exposed position of the gun is more of a target for hostile bullets than the prone skirmisher. The lack of nerves of the cannon in the naval battle of Santiago did not prevent the percentage of hits from falling to three per cent.

3. A great difficulty with the Machine Gun Platoon is the problem of ranging. While the effect of its fire can be seen at close ranges, at the longer ranges it can only be seen when the falling bullets throw up dust. In wet weather, or when firing into thick damp sod, marshy ground, or thick brush, it is difficult in the extreme to discover the fall of the bullets. And further, while an error of fifty or hundred yards in the distance is of little consequence at the shorter ranges, it is fatal at the longer ranges—the rain of bullets falls in front of or in rear of the object aimed at, and at the same time the fall of the rain of bullets is invisible.

4. The machine gun will add infinitely to the difficulty in solving the question of ammunition supply. Where are we going to find cartridges to supply this weapon, filling the circumambient atmosphere with bullets? If every bullet had a billet it would be well enough; our enemy would disappear quickly; but there is more repulsion than attraction between bullets and men. One is reminded of the talk about mitrailleuses at the beginning of the Franco-Prussian

War. "Why, the Prussians have not a chance," said the French, "we will sweep them from the earth with our mitrailleuses." And in a short time the Prussians had a park of over 900 mitrailleuses captured from the French.

5. By the organization of the regimental machine gun platoon the regimental commander becomes a commander of artillery as well as infantry. A complexity in the command of the regiment in action is introduced, which is dangerous and would be absent were the machine gun made a special arm.

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In 1878, when stationed on the Rio Grande, I saw Light Battery "F," Second Artillery, under the command of that superb soldier, Brigadier General E. B. Williston, then a captain. This was a battery of six machine guns (Gatlings), and was organized for service against the Mexicans, with whom we then feared a conflict. Williston, who had the reputation during the Civil War of being one of our most dashing light battery commanders, had his machine battery in a fine state of efficiency and, incidentally, expended many thousands of rifle cartridges in target practice. But he informed me, after this practice was completed, that at ordinary ranges he thought he could, in the same space of time, put more bullets into a target, using a Napoleon brass twelve-pounder, than with the machine gun.

And this prompts the question: How much, and in what way, is the machine gun battery superior to a mountain battery?

They are both equipped in the same way, carrying the guns on mules. What is their comparative volume and accuracy of fire, shrapnel against bullets, at 500, 1,000, 1,500, 2,000, 2,500 and 3,000 yards? What is their comparative efficiency in action?

Take into account that the mountain gun fires with certainty, the machine gun is forever getting out of order.

Take into account that the burst of the shrapnel can always be seen and the aim is then corrected; but the fall of the machine gun bullets can seldom, at the longer ranges, be located.



Take into account that the range of the machine gun is less than that of artillery, and that the machine gun is helpless under the fire of artillery at artillery ranges.

Take into account that the projectiles of mountain guns are effective against walls and material obstacles used for shelter, as well as against the ranks of the enemy.

Taking all these things into consideration, would it not be better for cavalry regiments to be associated with artillery rather than machine guns?

Our cavalry regiments are large, and properly; we need the three battalion organization for dismounted fighting, in which we are virtually transformed into the best quality of infantry. But for the independent operations of cavalry, for fighting against other bodies of cavalry we will need artillery. I believe that the best kind of horse artillery could be made of mountain batteries, provided the personnel of such batteries were mounted.

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Where and how is the regimental machine gun to be used in action?

Is the machine gun commander, like the battery commander, to be given a certain amount of discretion, or will he be moved along with the firing line?

The machine gun in the attack of a position can not be used in front of the skirmishers or firing line, for it will suffer from their bullets. It can not be used in rear of these skirmishers, for they will suffer from its bullets. If the machine gun battery is on the firing line, it will disclose the position of the firing line and hamper its movements.

In the attack of a position, how shall we formulate the movements of a machine gun battery?

Remember, it must be in no general terms—the machine gun platoon, used independently, has endless possibilities of annoyance to the rank and file of the advancing regiment. There should be no opportunity for misunderstanding, unless, indeed, the regiment is to wait on the machine guns; furnishing, so to speak, an escort during the fight.

There is no problem in war more important than the proper dispositions for the infantry attack of a position. It is the crisis of all preparation, all training. The problem is how to bring up, with the least possible loss, to "rushing distance" in front of the enemy's entrenchments a sufficiently large number of men to take them by assault. This is done by the successive advance of a number of echelons, scouts, firing line, company supports, reserves, second and third lines, etc. Firing is not always an indispensable part of this advance, but concealment is. The men must hug the ground, they must in every way attempt to conceal their advance, their position, from the enemy. Fire should only be used to keep down the return fire of the defenders, and only when such return fire becomes destructive. The regiment forms a part of a brigade—in our service regiments are too small to alone accomplish an important attack. Where does the machine gun come in in this advance? Is it on the line, in front of the line, or behind the line? What business have mules, horses, or even men standing and carrying heavy guns and tripods on a field of battle like this? Will they not supply the target the enemy is looking for?

The fact is, the value of the machine gun has long since been discovered to be in the defensive. As a defensive weapon it is admirable. It is admirably adapted to strengthen a line of battle of an army fighting a defensive action. It should be used like artillery, to reinforce the weak points of the line. To accomplish this it would be, like artillery, a special arm. Time was when regiments had regimental cannon detachments to increase their fire. But cannon never attained an important rôle on the field of battle until they were taken away from regiments and used independently.

JAMES PARKER,  
*Colonel Eleventh Cavalry.*

Pinar del Rio, Cuba,  
November 5, 1908.

## USEFUL FORMS.

Below are given a few of the blank forms which the undersigned has found useful in troop administration.\* Some of these forms are in quite general use. Others are original and their use has extended in some cases to other troops of the regiment. The use of some is so general and their utility so apparent that no extended reference will be made to the bunk card, the pass lists, the bill of fare, and the extra duty list. With reference to the others, a few words may be explanatory.

The daily detail list is a great aid to the first sergeant. The list contains all the daily details usual and so arranged that a mistake in making one out can be observed and corrected at once. Everything is presented to the eye and omissions will suggest themselves at once. The soldier who looks at the bulletin board cannot fail to determine what special duty will be required of him during the next twenty-four hours.

The report of the non-commissioned officer in charge of quarters is one of the most valuable of them all. Its great usefulness lies in the fact that it is a daily automatic check upon the number of arms that should be in the hands of the men. Should one disappear there is no question as to the non-commissioned officer in charge at the time of the disappearance. Other matters of importance are also reported by the non-commissioned officer on this form. This form is made out after reveille and is placed on the troop commander's desk by orderly hour.

The clothing list will also be found useful. By its use, only a few minutes are required to find out what clothing is necessary in the troop. A reference to the list suggests to the eye of every man that of which he may be in need. A little supervision will insure that the man reports his wants. There is thus less liability of an omission and, besides, the lists submitted are uniform and easily transferred to the clothing lists sent to the quartermaster. This form was

\*Owing to the space required and the extra cost of setting up the forms, the blanks are omitted.—EDITOR.

made before the recently adopted system of keeping clothing accounts came out. The principles on which it is laid still apply by a slight rearrangement of some of the items found near the bottom of the list.

The deserter's letter should produce good results if handled correctly. The idea is that once every few, say three, months, a letter will be sent to the home, place of enlistment, or other likely point, for every deserter from the troop for whom the statute of limitations is not yet operative. The result will be that some men will be caught, whilst others will be kept on the move so much as to have a discouraging effect on other would-be deserters.

The value of printed forms should be apparent. They are neater, the data required is always presented in a systematic manner, and omissions are less liable. Many troop commanders have systems of their own on many subjects. These in many cases would be more effective if there were a printed form therefor, instead of any irregular form that the troop clerk may make up and which is never twice alike.

The subject of expense for paper and printing is often deterrent. Even with a regimental printing press to do the work at reduced prices the printing bill will be on the average a dollar or two a month. If the troop possess some form of duplicating apparatus, the expense for making blank forms will be greatly reduced.

The mimeograph has been used with varying degrees of popularity. Not much is heard of it now. The Neostyle has had quite a run, but the makers restrict its use by the great cost of operation. One of the best devices for duplicating in a small way and with small expense is the Daus Tip Top Duplicator, made by the Felix F. Daus Duplicator Company, 111 John street, New York City. This comes in four sizes, but the one suitable for troop use (No. 1) has a printing surface of  $8\frac{3}{4} \times 13$  inches, list \$7.50. Each apparatus includes a  $5\frac{1}{2}$  yard roll of negative paper, which can be used indefinitely, and ink of two different colors. Black, blue, violet, red and green colors can be reproduced. One hundred and fifty copies can be made from each original if the original has been made by hand, or fifty copies if the

original has been made with a typewriter. The typewriter ribbon must be one specially made for this apparatus. The quality of the work turned out by this duplicator is infinitely better than that reproduced by a mimeograph and is also superior to and of more utility than a Neostyle.

With a duplicator in the troop, there are many useful purposes which it can serve. Besides blank forms, matter of all kinds can be struck off. It will be particularly useful in connection with non-commissioned officers school. Subjects are often taken up for which there are no text books or for which the existing text books are not adapted. The necessary data can be written out and run off on a duplicator in almost no time and with little or no trouble. Take, for example, the subject of security and information, there is no text book available in sufficient numbers which presents the subject in the best form for instruction of non-commissioned officers. A résumé of the subject covering the important points can be written out by the troop commander, run off on the duplicator, and distributed. Take also the subject of guard duty, the duties of privates can be run off in sufficient numbers so that each man will be given a copy and when troop school is held therein the men will be found to qualify much quicker. And so on, new forms of application will suggest themselves with increased use.

HOWARD R. HICKOK,  
*Captain Fifteenth Cavalry.*

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From "*Arms And The Man.*"

Metal fouling has become a greater nuisance with the 1906 ammunition than ever before. The use of very fine graphite is recommended as a preventive. It may be used by applying to the bore of the rifle by means of a rag on the end of a cleaning rod. Sperm oil may be used with the graphite if the latter is too dry to adhere to the bore. Another method of using the graphite is to put a small quantity in the shell with the powder, so that after each discharge a coating of graphite is left in the barrel.

In a test of graphited ammunition made at the Springfield armory, 3,600 cartridges were opened, the bullets graphited with Acheson No. 1340 graphite and returned to the cartridge cases. The bullets were knurled by rolling them under a file and then rolled in graphite between two blocks of soft wood.

After firing 3,600 rounds no signs of metal fouling were visible.

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A new bullet for the Springfield rifle has been brought out by the Peters Cartridge Company and was tried at Camp Perry in July. The following is the description given of the bullet:

"The bullet, on which patents are pending, is unique in that its base accommodates itself to all sizes and conditions of bore and is a perfect gas check. This is made possible by the uniform (cone-shaped) cavity in its base into which the jacket is crimped. By reason of the graduated thickness of the walls surrounding the cavity, in conjunction with the outward pressure of the propelling gases, the base is rendered so flexible as to readily accommodate itself in and out to any unevenness in the bore, whether caused by exigencies of manufacture, enlargement by wear or adhesion of the bullet jacket, commonly known as nickeling or metal fouling, thereby ensuring a more perfect gas check than the ordinary form of solid base. The effect of the metal fouling on the accuracy of the ordinary solid base bullet through gouging channels in the jacket for the escape of gas and its consequent erosion of both the jacket and rifle barrel does not exist with the new Tewes-Peters bullet, the flexible base of which rides over the nickeling much in the same manner as does a rubber tire over the unevennesses of a road.

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On October 2, 1908, Captain K. K. V. Casey, Delaware National Guard, made a test of the new telescopic sight for the Springfield rifle on the range of the National Guard of the District of Columbia, in the presence of General Drain,

President of the National Rifle Association, and Major Thompson, Ordnance Department U. S. A.

Captain Casey fired twenty shots at an unknown stance which was afterwards determined to be about one mile. His first shot was a ricochet three and the other nineteen were straight hits.

In his report Captain Casey states that the telescope is placed too far to the rear thus making it difficult to use. In his firing he moved the sight two and one-half inches farther to the front than its normal position. The wind guage and the elevating device were found to be very satisfactory. A number of suggestions for the improvement of the telescope were made by Captain Casey.

The shooting was done on ground covered with golden rod and daisies which effectually concealed the shooter, yet with the telescope he could see the target when it was impossible to use the service sight on account of the intervening growth.

"Certainly the telescope sight proved this, that any company officered by men who knew how to handle the service rifle and the telescope sight would be doing incalculable damage to an enemy's esprit and forces. And it proved this much more: That an officer who knew how to handle the military arm of his country could, with the piece equipped with this telescope sight, get the range of the enemy so accurately that guess work would be needless. And what a company of American sharpshooters would do, once the range were given them and verified by their own shooting, is left to the imagination of the readers.

C. E. STODTER.





## PRIZE PROBLEM NO. 8.

*The Editor Cavalry Journal:*

DEAR SIR:—The committee selected to examine the solutions of Prize Problem No. 8 has the honor to report that it finds the solution signed "Phi Gam" worthy of the prize. This was the only solution submitted to the committee.

The solution has been considered under the assumption made by the author that the hostile column continued its advance towards Frenchman, but until that fact became apparent, it might have been better to watch the crossings near 15 and Frenchman with two troops at each place and to hold the bulk of the cavalry, say two squadrons, at some central position, such as Bell Point, from which it could quickly reinforce either flank.

The cavalry commander took an unnecessary risk in sending so small a force to destroy the bridge on the Millwood road.

The solution places the bulk of the cavalry squarely across the enemy's path and apparently overlooks the desirability of utilizing positions flanking the enemy's line of advance, as being the usual and, ordinarily the best way for cavalry to delay a much superior column of hostile infantry.

A. E. SAXTON,  
*Captain Eighth Cavalry.*

LEROY ELTINGE,  
*Captain Fifteenth Cavalry.*

MATTHEW E. HANNA,  
*Captain Third Cavalry.*

In accordance with the above report, the prize for the best solution of Prize Problem No. 8 has been awarded to First Lieutenant John S. Fair, Ninth Cavalry.

## PRIZE PROBLEM NO. 8 (A DELAYING ACTION).

## SOLUTION.

## I. COLONEL A'S ORDERS AND INTENTIONS.

Upon receipt of Lieutenant E's message, Colonel A will at once send a report to the Commanding General of the Blue army, south of Leavenworth, giving in full the information he has obtained. Colonel A will then issue the following orders and instructions:

(a) To Lieutenant F: "An officer's patrol (Lieutenant F and four men) will proceed toward the Rock Island bridge, observe and report any movements on the part of the hostile force of 150 men on guard there, and send word without delay whether that force is mounted or dismounted. The regiment is marching towards Frenchman to delay a hostile force of infantry marching south on the Kickapoo-Frenchman road."

(b) To Lieutenant G: "Lieutenant G with six men, supplied with explosives, will proceed rapidly to and destroy the wagon bridge that spans Salt Creek on the Millwood road west of 15 and then rejoin his troop. The advance guard of a column of hostile infantry marching south on the Kickapoo-Frenchman road has reached Plum Creek."

(c) To Lieutenant H: "Lieutenant H with nine men, supplied with explosives, will proceed rapidly to, and destroy the wagon bridge that crosses Salt Creek on the Atchison Pike near Frenchman, and immediately afterwards the two railroad bridges spanning Salt Creek between Frenchman and Hund Hill. He will then rejoin his troop. The advance guard of a column of hostile infantry, marching south on the Kickapoo-Frenchman road has reached Plum Creek."

(d) To The Advance Guard Commander: "The Advance Guard will proceed at the trot towards Frenchman via Sheridan Drive, Prison Cemetery, Hancock Hill, Bell Point, F, and G. The Advance Guard Commander will keep his

force concealed from the observation of a column of hostile infantry now marching south on the Kickapoo-Frenchman road. I will join the advance party and accompany it to Hancock Hill where reports will be sent to me until further orders."

(e) "Lieutenant Colonel B, and Majors C, D and E, will report to me at once on Hancock Hill. Captain X will take command of the main body, close up to within four hundred yards of the advance guard and maintain that distance. He will send reports to me on Hancock Hill until further orders."

After issuing these orders Colonel A, accompanied by his adjutant, will ride rapidly forward to the advance party and hasten with it to Hancock Hill. Here, when his second in command and his squadron commanders have joined him, he will issue the following orders:

HEADQUARTERS SEVENTH CAVALRY, BLUE ARMY.  
HANCOCK HILL,  $1\frac{1}{4}$  MILES N. W. OF FORT LEAVENWORTH, KANS.

FIELD ORDERS, }  
No. 2. }

2 April, '08, 6:35 A. M.

1. FORT LEAVENWORTH has been abandoned by the enemy, except 150 men at the ROCK ISLAND BRIDGE head. A force of hostile infantry is marching south on the KICKAPOO-FRENCHMAN ROAD, the leading element of its advance guard being now 500 yards south of 17.

Our army has crossed the MISSOURI RIVER six miles south of LEAVENWORTH and is now engaging the enemy.

2. The regiment will rapidly take up a position just south of FRENCHMAN to stop the further advance of the enemy towards the SOUTH. The role of the advance guard as such now ceases.

3. (a) Major C with the First Squadron and the Machine Gun Platoon, will occupy (dismounted) a position facing north from the western edge of the vineyard, 400 yards north of BAKER, through GAUSS to the foot of the northern end of SENTINEL HILL and prevent the enemy from crossing SALT Creek east of FRENCHMAN.

(b) The Second Squadron will proceed rapidly via G and crossing the upper waters of the tributaries of SALT CREEK, will occupy (dismounted) a position facing north along the south side of SALT CREEK, from the stream on the west side of the vineyard north of BAKER to the foot of the northern slope of HUND HILL. The enemy will be prevented from crossing SALT CREEK or moving west on the ATCHISON PIKE.

(c) The Third Squadron will constitute the reserve and will proceed to the vicinity of the CURRAN house and halt under cover of the woods. Four reconnoitering patrols of one non-commissioned officer and three men each,

will be sent out at once by the commanding officer of the Third Squadron, to reconnoiter thoroughly the roads leading to the south and southwest.

4. I will be on SENTINEL HILL.

A.

*Colonel, Seventh Cavalry.*

Verbally to Lieutenant Colonel B, and assembled Squadron Commanders, and later to the Advance Guard Commander. Copy to the commanding general, Blue Army from Sentinal Hill.

Colonel A intends to fight a delaying action. He will compel the enemy to deploy a sufficient force to dislodge his dismounted troopers, and then when it seems to him impossible longer to withstand the attack of superior numbers, he will rapidly move to another position, where he will repeat these tactics. If the Red force attempts to avoid him by marching east on the Millwood road or making a detour towards the west, Colonel A has his Third Squadron in readiness to oppose any advance by the Millwood route, and should his enemy select the other alternative, while the infantry column is toiling across country towards the southwest, he can, by reason of his superior mobility, quickly give up his chosen position and confront the enemy in another place.

2. Colonel A's reasons for his orders.

Having been sent out from his winter quarters at Weston to prevent reinforcements from being sent to the enemy from the north, and knowing, as he must, that the streams are likely at this time of the year to have much water in them and to be difficult to cross, Colonel A will have provided his command with explosives for destroying bridges. The two wagon bridges and the two railroad bridges having been destroyed, the enemy will be compelled to seek places where the streams may be forded or devise some other means of crossing. This will be very difficult, because every movement on the part of the Red forces can be seen by the Blue commander, and steps taken to thwart every enterprise of the enemy.

From Hancock hill the country to the west and all the movements and dispositions of the enemy are plainly visible. It is a thousand yards from Plum creek to 17. By the time Colonel A reaches Hancock hill the point of the

hostile advance guard should be moving a little south of 17 if the enemy keeps on towards Frenchman. The commander of the Blue force will be able to judge pretty accurately from the formation of the advance guard whether or not the direction of march of the Red column will be changed at 17. The enemy will, very probably, continue on toward Frenchman, because the Kickapoo-Frenchman road leading to the Atchison pike is the best and most direct route to the south, where the rest of the Red army, only six or seven miles away, may be needing reinforcements badly. To turn either to the right or to the left at 17 would necessitate leaving a good road for a poorer one—a direct route for a circuitous one. Colonel A's orders are issued on the assumption that the Red infantry continues its march towards Frenchman.

The high steep banks and deep mud bottoms of Salt creek and its branches; the impossibility of surprising the enemy, since he is in his own land; the open country along his line of march, and the overwhelming superiority of the Red forces, all, cause Colonel A to decide not to attempt to use mounted action. When he is forced to retreat, the nature of the country will be an obstacle to a rapid pursuit by the enemy, and there will be many opportunities for the employment, on the defensive, of a force of the strength of a regiment. These circumstances and the instructions he has received will compel Colonel A to act on the defensive and fight dismounted. This decision, however, does not give all the initiative to the enemy. When the occasion presents itself the mounted reserve is ready to take the offensive, mounted or dismounted, in the true cavalry spirit.

3. A blue print of a tracing showing the position Colonel A expects his troops to occupy at 7:15 A. M. is appended hereto.

*"Phi Gam."*

NOTE.—It is not believed that the expense of reproducing the blue print mentioned is warranted, especially as the positions of the squadrons can be located from the orders given and from the following:

The First Squadron faces nearly northwest, two troops being located on the northwestern slope of Sentinel Hill between the 900 and the 950 contours; one troop near and in front of the Gauss house and the left troop in the vineyard 400 yards northwest of the Baker house, with the machine guns on its right in the northeastern edge of the vineyard. Their led horses are shown near G, between the Moore and Flint houses.

The Second Squadron is posted, as stated, with its right troop across the railroad and in front of the railway bridge nearest the Frenchman's; one troop is at the other railway bridge and the other two troops are on the left at the foot of the northwestern slope of Hund Hill. Their led horses are in the valley east of Hund Hill, about 500 yards in rear of their line.

The Third Squadron is posted along the road about 200 yards east of the Curran house, its center being at the point where Sheridan's Drive turns to the southeast.

EDITOR.

## PROBLEM NO. 10.\*

(See Map of Fort Leavenworth published in the Cavalry Journal for July, 1907.)

*Situation.*

A Red force of all arms is in the vicinity of Atchison. A Blue separate brigade, with cavalry and artillery attached, is marching north from Kansas City, along the west bank of the Missouri River and expects to be joined at Leavenworth, during the afternoon of October 14th by other Blue forces marching from the east through Missouri. The country is friendly to the Blues.

The Blue brigade camped the night of October 13-14th about fifteen miles south of Leavenworth and resumed its march at 7:00 A. M., October 14th. All the cavalry, one squadron under Major A is in advance with orders to reconnoiter to the north and west of Leavenworth and to drive back small parties of the enemy. The Blue brigade intends to stop at Leavenworth for the night, October 14-15, and await the arrival of its reinforcements from the east.

When Major A reaches 68 at 11:00 A. M., he receives the following message, sent at 10:45, A. M., from a patrol on Atchison Hill:

"At 10:30 A. M. I met a hostile patrol at the bridge over Salt Creek at Frenchman's and fell back to this point. A column of hostile cavalry can be seen approaching on Atchison Pike about two miles west of here. No infantry in sight."

Major A gallops ahead with the advance guard commander to Avenue Hill, reaching there at 11:05, A. M. and finds the situation as follows:

The support (two platoons) of the advance guard is under

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\*In accordance with the notice published in the October number of the CAVALRY JOURNAL, the Executive Council has concluded to give no more prizes for the best solutions of the problems published, but to return to the former custom of publishing a problem in each number of the JOURNAL and the corresponding approved solution in the following number.



cover at 62; the advance party (one platoon) is engaged in the woods along the 62-14 road, just north of the railway spur leading to the stone quarry near 20; their led horses can be seen under cover west of the road; the enemy's fire appears to come from the road junction at 14, (Atchison Cross) forty or fifty led horses can be seen moving on the road up the hill from the road junction, the main body of the Blue cavalry (three troops) is approaching the support; one platoon of the advance guard troop has furnished patrols, some of which are covering the roads to the west of 60 and to the north of Leavenworth.

The infantry, when last heard from at 10:45 A. M. was five miles in rear.

*Required:*

1. Major A's estimate of the situation.
2. His orders.



**Topographical  
Surveying and  
Sketching.\***

This excellent volume covers in compact form the subjects of Topographical Surveying and Rapid Topography or Sketching from a military standpoint.

The author was for a number of years the senior instructor in the Department of Engineering at the U. S. Army Service Schools at Fort Leavenworth, Kansas, and is largely responsible for the development of the modern methods of military surveying, which are described in this volume. These methods consist of such modifications of and additions to the art of surveying as were necessary to adapt it to modern military requirements, and have had the test of time and the approval of experience. Although military topography is still undergoing development, this volume presents the subject as it has been developed up to the present time.

It is a fact that is perhaps, not generally appreciated that there is no field of human endeavor in which surveying is of more importance than in the conduct of military operations on either a large or a small scale. Such operations cannot

\*"TOPOGRAPHICAL SURVEYING AND SKETCHING," by Major Thomas H. Rees, Corps of Engineers, U. S. Army, 1908. Price, \$2.50. For sale by the U. S. Cavalry Association.

be successfully carried out except with the aid of suitable maps, and since such maps can seldom be obtained beforehand to the extent required, a knowledge of surveying is of first importance to all military men, since they are certain to be called upon to map new and unfamiliar country in a very short period of time, and under great difficulties such as are not encountered in civil work. Military surveying has therefore become a new and distinct branch of the general subject.

Although as stated in the preface nothing new is added to the principles of topographic surveying, yet a perusal of the text will show that the manner of applying some of these fundamental principles, and the treatment of the subject in the light of military requirements, present some distinctly new features.

The author apparently realizes that a knowledge of surveying instruments and their use constitutes only a portion of the art of surveying, and, therefore, sets forth clearly the observations to be made and the methods to be followed in the field in order to obtain accurate results in the least practicable time. Those branches of surveying which are distinctly civil and find no application in military operations, such as municipal, mine, county surveying, etc., are omitted whereas distinctly military requirements are fully covered. Some features of this work not ordinarily embodied in civil text books on surveying, are as follows: Information required on maps for various military purposes, scales and and scale problems, adaptations of various scales to maps for different purposes, relation between scales and contour intervals in military mapping, map reading and map problems. The hasty methods of topography described under the head of "Sketching," are, of course, entirely different from all other ways of surveying. The author's precision of expression is very great, and his reasoning can be followed with little mental effort.

The descriptions of the instruments, their use and adjustments are particularly good, and cover the more important of the regular surveying instruments, as well as those used in military topography, such as the aneroid barometer

and clinometer. The method of marking the stadia rod to automatically correct for the constant of the transit is new and apparently applicable to any kind of stadia measurements.

The principles underlying rapid topography being the same as for any other topographical surveying this portion of the subject, under the head of "Sketching," is dealt with in a brief but thorough manner. The various sketching methods for individual work as developed thus far at the Service Schools are briefly described. The methods of combined sketching as recently developed, are not covered, it being probably intended that on this subject the text should be supplemented by the work on "Individual and Combined Military Sketching," recently issued. It is to be remarked that proficiency in military sketching cannot be attained by the study of a text book. The author well states the fundamental principle of sketching when he says: "In all methods of sketching the chief reliance is placed on the ability of the sketcher to draw free-hand on the paper what he sees on the ground." This ability can be attained only by practice. The following opinion of the author will probably be heartily indorsed by those who have had experience in sketching. He says: "Many different designs of sketching cases have been devised in an effort to provide an instrument that will do all of the work and replace skill on the part of the sketcher. In this latter purpose they generally fail, and the more elaborate designs are discarded by the sketcher as he acquires skill. The experienced sketcher prefers the simplest of means to aid him in his work."

The subject of map reproduction, photography, lithography, etc., although of great importance and intimately connected with the subject of sketching are not properly a part of it and are not covered in the text. These methods are being so rapidly developed at the present time that a text book dealing therewith would require constant revision to keep it up to date.

The drawings and plates are limited to those necessary to an elucidation of the text. Their execution is not up to the standard of a good draftsman, and they have not been

well reproduced. They may serve a good purpose, however, as indicating a reasonable standard to which the average military topographer who is not an expert draftsman should aim to attain. Arithmetic and trigonometry and many tables which can be found readily elsewhere, are wisely omitted.

The book is better suited to the requirements of garrison schools and individual study by officers of the army, than any other yet published.

**Russo-Japanese  
War.\*  
The Yalu**

Starting with 1856, when the American Commodore Perry forced Japan into signing a treaty of commerce, after she had for centuries declined to take part in any international trade, the first chapter of this work is given to a description of Japan's development into a modern state. The great Korean question from that date on is explained, the troubles arising therefrom and the ultimate war with China, the chagrin of the Japanese at being deprived of the main fruit of the war, the Liao Tung Peninsula, and the determination of Japan to be secure against such coalitions in the future as that of France, Germany and Russia. Hence we find the Anglo-Japanese Alliance, the careful training of men and the reserved attitude during Russia's attempted absorption of Manchuria, and her advances toward Korea. The immediate events before the war seem to be handled with frankness and candor and show the utter absence on the part of Russia to even feebly realize what a power Japan had become. It would seem to be the opinion of the Germans that Japan was ready at any time after 1902 for the conflict, for at that time she had completed the strengthening of her army and navy and believed herself to have an ascendancy over Russia's Far Eastern forces. So from this time on we see a more determined diplomatic stand on the part of Japan, and only utter imbecility can explain

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\* "THE RUSSO-JAPANESE WAR—THE YALU." By the Historical Section of the German General Staff. Translated by Karl von Donat. 1908. Hugh Rees, 119 Pall Mall, London, S. W. Price, 10s. 6d., net.

the actions of Russia at this time. Kuropatkin's history of this time may offer some explanation of the reasons of this imbecility and also serves to bring to mind the great factor of moral force, where a war is being carried on near home by one country and far away by the other. Even in these days of increased means of intelligence it still seems powerless to force upon countries the true state of affairs on the opposite side of the globe. Here the Americans can ponder, and if happily any of them realize they may be asleep, we may be thankful and hope they will wake up their indifferent brothers.

#### CHAPTER TWO.

Chapter Two is devoted to a description of the topography of the theater of war and the Siberian Railway. One will seldom see a language picture of the physical characteristics of a country that is plainer, and military men will read this chapter and learn much of what topographical description means. The roads of Korea, the character of the coast of that country and of the Liao-Tung peninsula, the mountainous country to the north, is so well explained that one could sensibly expect nothing of the Japanese except what was done.

The unfinished condition of the Siberian Railway and the desperate efforts, successful beyond all dreams of the Japanese, are vividly portrayed and are striking evidences of what the Russians can do when pressed. In addition to all this, the population of the different districts is given, with the territorial extent, and also what amount of provisions could be drawn from them, showing what amount of transportation was saved to Russia and Japan.

#### CHAPTER THREE.

This chapter deals with the opposing forces at the outbreak of the war. We can unquestionably take the estimates as about correct. They nearly coincide with the most reliable statistics so far published and one will not go far wrong in his study of this war if he accepts the numbers

here given and works out his problems and solutions on this basis. We copy the following as the peace organization of the Russian land forces in the Far East at the outbreak of the war:

1. Field Troops—84 battalions, 1 machine-gun company, 35 squadrons or sotnias, 25 batteries, 8 companies technical troops; roughly, 86,500 men.

2. Fortress Troops—1 fortress infantry battalion,  $4\frac{1}{4}$  garrison artillery battalions, 1 garrison artillery detachment, 5 companies technical troops, 1 fortress telegraph detachment, 1 fortress balloon detachment; roughly, 7,800 men.

3. Railway Troops—20 companies; roughly, 5,300 men.

4. Troops Guarding Railway—Frontier guard of the Trans-Amur district, 55 companies, 55 squadrons, 16 batteries; roughly, 30,000 men. Later it is stated that very few only of the Frontier Guard had occasion to coöperate temporarily with the field army.

Where these troops were stationed is also given and a map with the distribution accompanies the work.

The arms are also described, and we find that as far as the artillery is concerned the reported superiority of the Russian gun was overcome by its being so new and having quite a number of defects, some of which it was claimed were due to bad construction. A short amount of space is given to training and the old Dragomirow's (Dragomiroff) drill regulations. Tactical students will be glad to get even this description. There is the following regarding cavalry in this connection: "The principles of Russian regulations for the employment of cavalry in action need not be discussed here in detail, since, apart from a few European regiments, no trained cavalry, or what we should consider as such, was employed on the theater of war. This explains the failure in the most important branch of cavalry training, the strategic and tactical reconnaissance. The Cossacks, with few exceptions, were unable either to read or write."

We copy the following from pages 64 and 65 for the benefit of those who think the army is over educated: "The artillery being in the process of re-arming, its practice was at first not up to the standard. It was not sufficiently trained



in fire tactics and in coöperating with the infantry. Coöperation with the various arms was altogether poorly developed." \* \* \* "But the training of staff officers of superior commanders, too, was not up to modern requirements. Generals and staff officers who have not become intimately conversant already in peace with the conditions governing the movements of masses, must be at a loss when confronted by them in war. Improvising anything at such a moment is then as good as impossible."

In this chapter we also find further discussion of the Siberian Railway and the transport of troops before the completion of the road around the south of Lake Baikal.

The peace organization of the Japanese Army, in imitation of the German, is given in Appendix 2. Before the outbreak of the war it was, according to Japanese statements, 6,993 officers, 152,664 men, 22,015 horses, and 720 guns. A short space is given to the recruiting system, and we find the Japanese recruited largely from districts for each organization, except the Guard Infantry, which was recruited from the whole country.

The number of men missing was said to be very small. The deficiency in horses was made good as much as possible by purchases abroad. Greater difficulties were caused by the lack of officers, since, besides the regular officers, there were but, roughly, 3,400 Reserves and Landwehr officers. The gaps in the corps of officers were partially filled by giving commissions to non-commissioned officers and by an early promotion of war-school pupils. The regulations for admission of candidates for a commission had to be twice given a wider range in the course of the war.

This work states that the Japanese underrated the force of Russia in the Far East at the outbreak and they also underrated the carrying capacity of the Siberian Railway, which last is not at all surprising, for no one could even anticipate the mind of a Khilkoff.

## CHAPTER FOUR.

This chapter is devoted to the events at Sea up to the death of Admiral Makaroff and to the landing of the First Japanese Army. This is rather a short chapter and is so full of meat that one can hardly epitomize. I simply give the margin headings:

Japan opens hostilities by sea.

The first troops of the Japanese Twelfth Division are landed at Tsche-mulpo.

Further naval events before Port Arthur.

The Japanese Guard and Second Division are transported to Korea. The Twelfth Division begins its advance on Pyong-yang.

Renewed attacks on Port Arthur. Futile sortie of the Russian fleet. Death of Makaroff.

We find here some reason for all the seemingly useless attacks on Port Arthur. And we also see that landing an army is after all not quite so easy a task as one would suppose. We are somewhat struck with the inactivity of the Russian cavalry in not more energetically opposing the landing in Korea, or at least in not more vigorously opposing the advance of the first Japanese units. The Japanese expected to find the Russians near Anju and were expecting the first battles of the war to take place along the line of the river that flows through or near that town. But when we strike the Russian point of view later on we learn why it was decided to make the Eastern Detachment only a delaying detachment and one not to oppose vigorously the Japanese advance.

The last two chapters of the book, extending from page 118 to 248, deals with the movements in Korea and the action on the Yalu. It is hardly necessary to state that this is the best description of these events that has appeared. All other works on these subjects are so many primers compared to this, but this itself is so simple that it might well be called a primer. But though it is simple, it is complete and contains the information that military men want. The maps accompanying the text are splendid, and while the

names are long and tiresome, think of Korean and Chinese names receiving a German translation, yet the text references can all be found and the movements of the various units can be traced.

And many things heretofore perplexing are somewhat cleared up, such as Mitschenko's withdrawal and the uselessness of Madritow's raid. One of the most striking things in this campaign is the remarkable success the Japanese had in keeping the Russians in the dark as to the crossing place of the Yalu. This stream is no mere child's bathing place, but it is a mighty river, and all the dangers that attend an army in crossing a large river in face of the enemy were present all the time with the Japanese. Their great success was largely due to the fooling of the Russians as to the exact places of intended crossing. The worthlessness of the Russian cavalry could hardly be more plainly shown than in the operations before the Japanese reached the Yalu and the fact that during the time the Japs were making preparations nothing of any consequence whatever was done by the Russian cavalry to inform the Eastern Detachment Commander where the Japs might be expected to cross. And what little information was furnished seems not to have been received with much assurance of accuracy by the commander, he having found, probably, how little he could expect, and distrusting that.

The tactical formations in the battle of the Yalu are quite completely given, and I quote from page 219 as to the deployment of the firing line:

"At 7 A. M. the Japanese began their forward movement. The deployment of a firing line with one or two paces interval was carried out as prescribed by the regulations, which had been modeled after the German; the companies did not retain any supports, however, but extended at once their three sections. The Twelfth Division had in its first line two battalions of each of the Forty-seventh and Twenty-fourth, as well as a battalion of the Forty-sixth Regiment; the other battalions of these regiments followed in second line. Its reserve, formed by the Fourteenth Regiment and the Engineer company, followed behind the right wing at a

distance of 1,330 yards from the firing line. (The distance of the second line from the first is not given in yards, but the map shows it to have been divided into several parts and following the first line at different distances.) The artillery fired from their position on the eastern bank of the Ei-ho. (The artillery of this division occupied a position on the left of the firing line as it reached the river. As the Japanese were in greatly superior force, and had a river in front of this position, and as the right of the Guard Division connected with the left of the Twelfth, there was no danger in this advanced position for the artillery.) The deployment of the Guard and Second divisions has been made in a manner similar to that of the Twelfth Division."

There are many lessons to be learned from this battle, and students will clearly see the great mistake of Colonel Gromow in not informing the other wing commander of his withdrawal and its direction. For when Kaschtalinski started to withdraw he soon found his left entirely unsupported and the Japanese there. This compelled the action at Hamatan and it seems Kaschtalinski did well to get away as he did.

We are given quite an insight in this account of the supervision exercised by Kuropatkin over the course of events. We quote the following telegram from Kuropatkin to Kaschtalinski, before Sassulitch took over the command:

"Take the most energetic measures to get in touch with the enemy; organize reconnaissances across the river. Order small enterprises against the enemy and alarm him. Pay high sums to native spies. Report to me at least twice daily, even if nothing has happened. Repair the road to Fenghuangcheng. Carefully think out all orders for defense and retreat, so that no trophies may fall into the hands of the enemy. Get into communication with Madritow."

The following are the remarks of the German compilers upon this and similar instructions:

"From this telegram, as well as from the subsequent directions, orders, instructions, inquiries, and remarks, and which almost daily reached the Eastern Detachment in large

numbers from Army Headquarters at Liao-yang, a clear idea can be formed of how much the leaders, who were in touch with the enemy, must have been influenced in their resolutions by Headquarters. This constant interference with the authority of subordinates, even right up to the commanders of divisions and corps, which is brought to light here, and which did not mind to order about even individual battalions, batteries, and sections of batteries, was the cause, as can be gathered from the next few paragraphs, that the leaders of the Eastern Detachment did no longer venture to order the smallest alteration on their own initiative; but, by reason of this tutelage from Liao-yang, always asked permission first by telegraph from Army Headquarters. No wonder that in this way also the self-reliance and initiative of the inferior grades, as well as of the private soldiers, were reduced to a very low level, especially when, as in the Russian Army, there is in itself little inclination to act spontaneously. This could not be otherwise than fatally felt throughout the campaign."

Of course there are duties of subordinates that should not be interfered with unnecessarily by commanders. We hear the expression once in a while that such and such a colonel is trying to be first sergeant of the troops or companies. And it is quite true that there are many men who can never, intellectually, rise above a certain grade. Some men are born captains or majors and not anything higher. But in all this matter of interference with subordinates it seems to me there are two sides. That little vexatious interferences are deadly, there is no mistake. I can illustrate such interference in no better way than by quoting Field's characterization of the Sultan Abdul Hamid, in his work on "The Greek Islands and Turkey after the War."

"On one occasion a foreign ambassador was introduced, who found the Sultan preoccupied, his brain weighed down with care. The first words that fell from his lips indicated how he felt the burdens which rested upon him, to which the ambassador replied with respectful sympathy that the affairs of state which oppressed His Majesty must indeed be overwhelming. Thus drawn out, the Sultan mentioned the

problem which at that very moment vexed his imperial mind, it was a regulation to be made in regard to the cafés in Constantinople. If this be true (and I have it from an authority I cannot question), it gives the measure of the man. It shows a mind which delights in petty details, and is incapable of rising to public affairs. The Empire may be going to ruin, corruption may prevail in every department of the government, whole provinces may be desolated by famine, yet this master of all must occupy his lofty intellect with the regulations of cafés and dancing girls. Such a man might be a major-domo or a Lord-chamberlain, but is utterly incompetent to a position which is one of the most august in the world. "(Woe unto thee, oh land, when thy king is a child!)"

"The Unfortunate Commander," a title that history is attaching to Kuropatkin and to which I have had occasion to refer before in the *JOURNAL*, was possibly a better Chief of Staff than a General. But we should not forget that attention to detail is necessary at times, most times, I believe, except in cases where the stress of mighty events is too great. Then subordinates must be trusted and if found wanting removed by court-martial, death or by any other means that promptly places the right men in their places.

We believe there is too much criticism in our army of commanders who pay attention to details. They may have found from their experience that such is necessary. And with volunteer and inexperienced troops in time of war there is more need than ever for attention to small matters. And we firmly believe that when the history of our own times shall properly record the acts of the last ten years, General Otis, who was constantly receiving this criticism, will stand the colossal figure of American history at the opening of the Twentieth Century. I recommend the careful perusal of the report of General Otis in the War Department Report for 1899, to every officer in the army, and if, after laying down the report, a most high estimate of that man's wonderful power is not reached, I will be mightily mistaken.

It is true, in the telegram quoted above from Kuropatkin there is little except what a subordinate should do, and if

he did not do this much he would be a proper subject for court-martial. But we know from our study of the Russo-Japanese War upon what reeds Kuropatkin had to lean. Small wonder he was worried, though I must admit the present book has given me a better opinion of Kaschtalinski than I previously maintained.

Of course this is the most authentic work that has yet appeared, and as far as that is concerned is unquestionably the most authentic work on the subject that will ever appear. For the Germans know more of the war than any other people, except the Japanese, and the Japanese are never going to tell. It will be impossible for any other people to compile such a work for no other attaches secured as much information as did the Germans in the far East, and no other general staff has such a competent historical section.

To begin with it is understood that there is a historical section of the Great German General Staff whose men are carefully selected on account of their ability to write history, men whose lives are spent in that pursuit, who are trained to compile facts and applying to the facts the general rules of evidence, deduce the truth as no other set of men can. Then again it is to be remembered that the Japanese system is modeled after the German, and to do all this modeling required many Japanese officers to receive their education in German schools. These German educated Japanese were to be found at every division headquarters, and when Germany came to send her attaches for observation it was carefully arranged that to every division headquarters should be sent an attache that was a class-mate of the German educated Japanese official that was at that particular headquarters. So the German attaches found old friends and class-mates at the division headquarters, with whom they could converse in German and with whom they could while away a leisure hour, when one chanced to come along, talking over the boyhood systems of instruction. Now it should be understood that I do not say for one instance, that the German attaches received officially any more information than did the attaches of any other nation, but it would take a credulous person indeed to believe that in the conversations between old class-



mates in the spare moments after lunch, or while waiting for reports under some tree, nothing was given to the old time friends except what was given out officially to all attaches.

Then it is believed that the Russian army was imbued with the idea that Germany was particularly anxious for Russia to win and so there would be less tendency to strictness with the German attaches than with those of England, decidedly an ally, or those of the United States, whose country was furnishing much of the sinews of the struggle. So to the Germans we must look for the most reliable and authentic relation of the events of the great war, and we are assured by this first installment, up to and including *The Yalu*, that we are not wrong in our expectations. Military students know what the German account of the Boer War is, and to them nothing more need be said than the fact that the same thing is being done in the history of the Russo-Japanese War, and that the first section has now appeared.

No officer can afford to be without this account. And if his financial condition does not allow of heavy purchases or even light ones on the subject of the last great war, yet this one book he should have above all others. The rest are but primers compared to this.

In the past the *CAVALRY JOURNAL* reviewed most of the books on the Russo-Japanese War as they appeared, and a recommendation was made in each number as to which books were considered the best for purchase by officers of moderate means. If I may be so bold as to repeat the work that was formerly done, I would give as my own independent views the following works as valuable and of value as they are numerically mentioned:

Of Primary Importance:

*First.* The German Official Account of the Russo-Japanese War. (First volume now ready from the press of Hugh Rees, London. Price, 10s. 6d)\*

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\*Of course it is expected our officers keep the reports of our own attaches and no comparison of these valuable works is made with any of the publications above given.

All of the above have been reviewed in the *JOURNAL*, publishers and prices given.

*Second.* The War in the Far East. Military Correspondent of the *London Times*.

*Third.* A Staff Officer's Scrap Book. General Ian Hamilton.

*Fourth.* Port Arthur; The Siege and Capitulation. Ashmead-Bartlett.

*Fifth.* The Battle of Mukden; The Battle of the Sha Ho. Von Donat's translation from the *Militär Wochenblatt*.

*Sixth.* Lessons on the Russo-Japanese War. De Negrier.

*Seventh.* For Comparison, The Chinese-Japanese War. Vladimir.

*Eighth.* On the Causes, The Russo-Japanese Conflict, Asakawa: Also *McClure's Magazine*, September and October, 1908, containing Kennan's translation of Kuropatkin's Book. The three succeeding numbers of *McClure's* may contain more matter of import to the student of strategy and tactics.

Of secondary importance are such as the following:

General E. E. Wood's compilation; The Work of Asiaticus; The Truth about the War; Chasseur's Work; Wrangel's Cavalry.

WHITE.

### **Studies in Applied Tactics.\***

During the past year the library of the cavalryman has been enriched by at least three notable translations of foreign books, and to these another has now to be added.

The book is written on the applicatory system of instruction first introduced by General von Verdy, and generally recognized as the most valuable method of imparting a knowledge of the art of troop leading. Those who have followed the Second Division with General von Verdy in his "Studies in Troop Leading," or those who have ridden with the cavalry in "The Cavalry Division" will need no further guarantee of the value of this new book than the statement

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\*"STUDIES IN APPLIED TACTICS." By Lieutenant General von Alten, translated by Major C. H. Barth, Twelfth United States Infantry. Franklin Hudson Publishing Company, Kansas City, Mo. Price, \$2.00.

that it is an exceptionally worthy example of the von Verdy system.

The text is divided into two parts, the first dealing with reconnaissance, the second with cavalry outposts, marches and combined outposts; the same situation or story continuing through the whole.

The book is written as though it were the story of a real campaign in East Prussia. A Blue army in friendly territory is presumed to be moving eastward from the Vistula River against a hostile Red army from the East. The left wing of the Blue army, with which the story deals, consists of an army corps with one regiment of Divisional Cavalry attached.

The story begins with the sending out of a troop of the attached cavalry regiment (which is used as independent cavalry) and the forming in turn by this troop of its own network of patrols. Each patrol is taken up in turn, each encountering different conditions and so teaching a different lesson. This patrol meets hostile troops from the start, that patrol is more fortunate and penetrates the hostile screen gaining a glimpse of the infantry columns in rear, etc. Just what the patrol leaders, lieutenant or sergeant should do under the presented conditions becomes a problem which the reader should solve for himself before reading what he actually did do. By reading on he will be able to determine for himself from the subsequent events whether his solution was as good as the author's or not. There is hardly any phase of the conduct of patrols which is not covered in some one of the many situations considered, whether it be feeding and watering, message writing and sending, map reading, combat or simply the conduct of the patrol on the march.

One reads on in this interesting book as though it were a fascinating novel, but gains the while a fund of useful knowledge ordinarily available only in war itself.

Next the problems of the troop commander are presented in a similar manner. He must send out his patrols and keep in touch with them, difficult in peace maneuver, infinitely more so when the "Fog of War," poor maps and a worthy enemy must be considered. Again the reader feels the fas-

cination of the story growing on him but now in a broader way, for the details and difficulties of the patrol leader seem insignificant when compared with the perplexities of the troop commander. And these in turn lose their importance when the scene shifts to the side of the colonel with his greater responsibilities. With him we read the messages which earlier in the book we saw the patrol leader write and dispatch; and with him, after a hard day's work, we go into camp and establish camps and outposts for the night.

The first section of part two is devoted to the arrangements of independent cavalry seeking to pass the night far in advance of the army and near the enemy. Camping and putting out an outpost at a maneuver is one thing, camping and establishing outposts after a hard day's work over an extended front is another and quite a different thing as the reader discovers. When, where and how to feed and water, what to do with the horses of the pickets, how to get food and forage to the detached troops, to secure the needed rest for man and horse and at the same time to protect the regiment from the alarms or the attacks of an enterprising enemy now in contact, these and the many other problems and duties which fall upon the fatigued officers and which, so easily overlooked in a war game or maneuver, are so insistently present in service, are told in the same interesting story-like way; the lessons being grasped almost unconsciously.

In the second section of part two the author considers the arrangement of troops and the protection on the march of an army corps which had to look out for hostile cavalry on its front and flanks. The third section deals with the halt of the army for the night, the posting of its outposts composed of both infantry and cavalry and is not less interesting in its way than the portions already considered.

Taken as a whole, the book is one of surpassing value and it should be read by every cavalryman. It is unusual in that the troop non-commissioned officers may read it with interest and with profit, as well as the troop, squadron and regimental commanders. Every page is a lesson and the

whole is a stirring story of imaginary but intensely realistic cavalry operations whose interest never fags.

The maps which accompany the text are far from good and their imperfections and short comings detract much from the value of the book. It is to be hoped that another edition will be accompanied by a more worthy set of maps. Many readers will regret that the German cavalry organizations of the original were changed by the translator to our own familiar troops, squadrons and regiments, but on the other hand it is probable that quite as many will count this in favor of the book.

H. E. E.

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**Tactical Decisions and Orders.\*** The author assumes for his general situation, the pursuit of a recently defeated Red army, and covers in detail the movements of a Blue infantry division, (German organization), reinforced by a cavalry brigade detached from the main Blue army, to pursue a similar force of the enemy, which has become separated from its main army in the general retreat.

The operations of the Blue division are followed through eight days, during which time it pursues the Red division, attacks and defeats it, pursues again, is stopped, makes a flank march paralleling a similar march by the enemy, changes direction, and successfully attacks.

The author also goes over to the Red division for a period of two days, involving the occupation and defense of a position, and withdrawal therefrom.

The decisions and orders of the Blue commander form the principal considerations of the text, though the decisions, orders, etc., of the higher subordinate commanders, particularly the commander of the cavalry brigade, are frequently entered into in great detail.

The analysis of the various reports received, by the division commander, his deductions and consequent decisions

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\*"TACTICAL DECISIONS AND ORDERS, A STUDY IN TROOP LEADING." By Albert Buddecke, Captain German General Staff. Third revised edition, 1906. Translated by Captain A. L. Conger, 29th U. S. Infantry. Franklin Hudson Publishing Co., Kansas City, Mo. Price \$1.25.

and orders, form the most instructive portions of the book. The scheme for carrying along the movements from day to day is excellent and contrives to make the situations unusually realistic, interesting and instructive.

Particular attention is given to the subsistence and ammunition supply of the division, and the management of the numerous trains and supply columns are carefully worked out. The operations of the cavalry brigade furnish very interesting situations.

While the book appears particularly adapted to the use of officers preparing themselves for general staff duties, it should prove very valuable to all officers who have progressed in their studies through the handling of a detached brigade.

A guide map on a scale of 1 : 1,000,000, and a detailed map on a scale of 1 : 100,000 are furnished. The paper on which the latter is printed might be of a more substantial quality. The book has 231 pages, is well bound, and is printed in large type on fair paper.

G. C. MARSHALL, Jr.,

*First Lieutenant, 24th Infantry.*

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**Robert E. Lee, The Southerner.\*** In the introduction the author expressly disclaims any intention "to undertake to discuss critically the great campaigns which Lee conducted or battles which he fought," but gives rather, as his aim, to speak of "Lee, the man."

In so far as he adheres to his main design the work is excellent and the author gives us many interesting and some new anecdotes of Lee, the chapters on his "Early Life" and "Lee as College President" being particularly of interest.

It is to be regretted, however, that apparently in spite of himself, the author is drawn into the realms of military controversy and attempts to defend Lee's greatness as a military commander against any and all comers. For the military

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\*"ROBERT E. LEE, THE SOUTHERNER." By Thomas Nelson Page. Charles Scribner's Sons, New York. Price \$1.35, postpaid.

man this is unnecessary; as Lee's skill and good judgment are better known and understood by him than, apparently, by Mr. Page. The effect upon the non-professional reader of this part of the book is difficult to conceive, as the congeries of glittering generalities, presented in the guise of descriptions of campaigns, is at once dazzling and baffling to the imagination.

As an example, the following references to the campaign on the Peninsula in 1862 may be quoted:

"Lee's first act [upon taking command of the army after Gen. Johnson was wounded] was one which should dispel the illusion that Lee was great only in defensive operations."

"Massing his troops suddenly on the north side of the Chickahominy and calling Stonewall Jackson to meet him at a given point at a given hour, he fell upon McClellan's entrenchments and rolled him back to the upland plain of Malvern Hill."

"Was he [Lee] acting on the defensive or offensive when again, dashing upon him on the entrenched uplands of Malvern Hill, he swept him back to his gunboats, and shattered at once his plans and his prestige?"—pp. 96 and 97.

The facts being that Lee's first act upon taking command was to disengage his troops from an assault on the left wing of the Union Army, south of the Chickahominy, ordered by his predecessor in command, and ordered them to return to their entrenchments in front of Richmond, where the bulk of the army remained inactive for more than three weeks.

This characterization of the "Seven Days Battle" is rather unique. Ropes says, vol. ii, p. 205: "The movement of the Army of the Potomac from the Chickahominy to the James was not the result of the Confederate attacks on it; the movement was dictated by the absolute necessity of establishing a new base of supplies. \* \* \* The marching away of the Federal Army after each engagement was not because it had been beaten; it was simply going on with the movement to the James."

Ropes says of this battle, vol. ii, p. 203: "The failure of the Confederates was complete. \* \* \* The Confederates lost over 5,000 men killed and wounded.

It is difficult to realize that both authors are describing the same events, but in this case it must be said that Mr. Ropes' description is in accord with the facts, not Mr. Page's.

This book cannot but suggest that though thirty-eight



years have elapsed since the death of Lee, no adequate military biography of him has as yet been written, though there are many who understand well his genius and his comprehension of the art of war, and though we are to-day, Northerner and Southerner alike, equally proud of him as of Grant. That our author has had no such biography or history to which to turn to find the military facts he sought for the purposes of his narrative may, to a certain degree, excuse him for his errors. It should, however, cause our foremost military writers to consider and awaken to their responsibility.

A. L. C.

**Military  
Primer.\***

In the book's preface, the authors thus define the sphere of usefulness which this book is designed to fill. "This book

is in no sense a textbook for advanced students of military science, but a book for the beginner, designed to teach the cadets of the Military Academy \* \* \* the objects (*sic*) of the profession for which they are preparing themselves."

In spite of the limited audience with its special and peculiar surrounding conditions to which the authors address their work, the chapter on Loyalty, Obedience and Discipline might well be placed in the library of any military student because of the clear and impressive statement of the importance of these traits in the soldier.

The chapter on map reading and orientation deals with a subject of such importance that one cannot but wish, in reading the book, that the treatment had been made simpler and more practical so that the beginner—and the book is written for beginners—might learn to *read* a map rather than learn to *study* one.

In dealing with patrols, advance guards and rear guards, the authors have taken a step, or rather a long stride in the right direction by introducing examples of the conduct of such bodies in concrete cases to illustrate the formal rules which are quoted from the Field Service Regulations and

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\*"A MILITARY PRIMER." By Captain Francis C. Marshall, 15th Cavalry and Captain George S. Simonds, 22d Infantry. Price \$2.25, postage paid.

other authentic sources, but it is to be regretted that they did not follow the same system of instruction as that used at Leavenworth, since in an army as small as ours, there should be a coördination of instructional methods rather than a divergence, and these same cadets must look forward to the time when they will, as students in the Service Schools learn that the strength and composition of an advance guard cannot be determined satisfactorily without some reference to the terrain and to the enemy.

The latter part of the book—dealing with outposts and the independent cavalry, not only has no place (considering the character of the discussion accorded them) in a "Primer," but fails as a presentment of the subject. It is to be hoped that future editions of the book will omit these last two chapters and many of the problems which close the work.

The press work and maps are excellent, but the size of the book—10¾ inches by 13½ inches, is extremely awkward for anyone except, perhaps, for the cadet for whom the book was written.

H. E. E.

**Military  
Law  
Examiner.\***

The seventh edition of the Military Law Examiner has just been brought out by Gale & Polden. There is little to add to the review we gave of the last edition in our October number, 1906. It is necessary in such books to keep them constantly up to date, and this can only be done by successive editions. That such a work possesses value is attested by the fact that successive editions pay.

As stated in our last review we do not at all agree with the author in his views of questions and answers. He calls attention to the *manner* in which the answers are framed, stating that a long answer is usually a wrong one. This may be true of the general run of examiners who have to mark papers, especially as the majority of people are constituted

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\*"THE MILITARY LAW EXAMINER." By Lieutenant Colonel Sisson C. Pratt, Royal Artillery, retired. Gale & Polden, London. Price, post free to any part of the world, 4s. 6d.

lazy. But the proper examiner should never weary in reading answers as long as they are not too far-fetched. If in answering a question, a person has time to go somewhat deeply into the subject, it should not militate against him. If I ask a man what a treaty is and he gives me a good statement, such that it could be incorporated into a treatise, I do not believe the answer should be cut as being too long. The trouble with examiners is just what the author indicates, a laziness and no inclination to do any more than they have to. Such examiners should be gotten rid of and men put in their places who are not afraid of a mass of papers even if it does take some hours more to mark papers than they think it should.

It is true there are men capable of answering questions with much greater brevity than others, some men can say in four lines what others will take ten to express, and generally speaking the four line answer of such men will be by far the best. But these men are few. And while brevity is to be recommended in general, yet there is great danger in dealing with the majority of officers, that while brevity is the soul of wit, we shall find too much brevity and too little wit.

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**Autobiography of Sir Harry Smith.\*** The autobiography of Sir Harry Smith has gone through many editions in England without it being barely known in America. Sir Harry may quickly be oriented by Ladysmith, who gave name to the town and siege in South Africa, where both their names will long live from the days of the Kafir wars. He ranged wide like so many lucky Britishers who fought all over the world in the fifty years round about the time of the Iron Duke, while, like Lord Wolsey's "Story of a Soldier" and Roberts' "Forty-one Years in India," his narrative is delightful in its simplicity and personal touches, at times his doings and adventures are quite Charles O'Malley like; again one won-

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\*"AUTOBIOGRAPHY OF SIR HARRY SMITH." John Murray, London, and Brentano's. Price, \$3.15.

ders if Brigadier Gerard is not riding and slashing. But Marbot is the real prototype; and both are true types of their own countries and telling the truth in spite of the smile that will often come when the long bow is pulled a bit.

Sir Harry "scrawled over his life at full gallop," one crammed full of soldier doings from subaltern to general, with ribbons for Montevideo and Buenos Ayres, the Peninsula, Bladensburg and Washington, New Orleans, Waterloo, campaigns in France, South Africa, India and British America.

But to Americans his experiences as A. G., both to Ross at Bladensburg and Washington and to Pakenham at New Orleans, are of liveliest interest. The soldier man will be a bit surprised over his criticisms of the troop leading in these fights, and then after Bladensburg follows fast: "Suffice to say we licked the Yankees and took all their guns, with a loss of upwards of 300 men, whereas Colborne would have done the same thing with probably a loss of forty or fifty, and we entered Washington for the barbarous purpose of destroying the city. Admiral Cockburn would have burnt the whole, but Ross would only consent to the burning of the public buildings. I had no objection to burning arsenals, dockyards, frigates, barracks, etc., but well do I recollect that, fresh from the Duke's humane warfare in the South of France, we were horrified at the order to burn the elegant houses of parliament and the President's house. In the latter, however, we found a supper all ready, which was sufficiently cooked without more fire, and which many of us speedily consumed, unaided by the fiery elements, and drank some very good wine also."

The fine spirit and generous nature of the soldier stand out throughout the book, and his loyalty and admiration for his chiefs is not the least of his good points.

**Notes on  
Staff Rides.\***

This little book explains fully and in a very concise and compact form what a Staff Ride is and how it should be conducted. While it is intended for beginners, it contains much valuable information for the more experienced and especially for him whose lot it is to organize a staff ride.

The regimental or tactical tours, as described in this book, are similar to the terrain exercises as conducted in our service schools; and differs from our tactical rides, as we call them, in that the latter are nothing more than a one-sided war game with the maps replaced by the ground and the director playing the part of the enemy.

Section XI, on reconnaissance, is a handy addition to the book and will greatly assist an officer detailed to report on any of the several subjects mentioned therein.

The size and shape of the book are such that it can be carried in the pocket.

D. K. M.

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**Notes Made  
in Peace  
and War.†**

The author in the course of his distinguished career, followed the injunction "when found, make a note of" and he presents the result in a very entertaining way. The notes cover a wide range, from thoughts on ethical questions to practical considerations, such as the effect of loss of sleep on the nerves. Many of the notes are illustrated by anecdotes, mostly drawn from the author's experiences in India, in the Soudan and South Africa. The following few selections from the Notes illustrate the character of the collection.

(8) To send us reinforcements.

Remark of an old private, when the C. O. had joined the fighting line, where he was killed: "Why, the Colonel was in the line just like one of us. We didn't want him

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\* "NOTES ON STAFF RIDES AND REGIMENTAL AND TACTICAL TOURS FOR BEGINNERS." By Major T. E. Fowle. Gale and Polden, London. Price, 2s, net.

† "LESSONS FROM ONE HUNDRED NOTES MADE IN PEACE AND WAR." By Major E. A. H. Alderson, C. B., p. s. c., Gale & Polden, London. Price, 2s, net.

there, we wanted him back behind to send us reinforcements."

(13) Never "give away" a subordinate.

At a maneuver, a brigade commander, referring to a certain contertemps, said: "This was the fault of my staff officer." The director commented, "Here the G. O. C. blamed his staff. This cannot for a moment be permitted. He alone is responsible."

(34) What are the secrets of influence?

The Bishop of London says:

1. Absolute straightness.
2. Absence of "side."
3. Sympathy."
4. A sense of humor.
5. Faith.

The author adds:

6. A high ideal.

(54) The army means its officers.

(68) Justification of departure from orders lies not in success, but in the considerations of the case.

There are appendices on orders, communications, writing reports and memoirs and the "Estimate of the Situation."

The book is well worthy of a place in a military library.

### **Visual Training.\***

The author of this handbook, an instructor in the Musketry School at Hythe, presents a brief synopsis of the English method of treating this important subject. He first indicates the approved methods of teaching recruits quickly to distinguish objects, cultivating the faculty of observation and increasing the recruit's vocabulary and training him in methods of correct description. One feature of this is an ingenious method of describing the exact location of an indistinct object with reference to landmarks. A uniform

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\*"NOTES ON VISUAL TRAINING AND JUDGING DISTANCES IN RELATION TO MUSKETRY." By an Instructor at the School of Musketry at Hythe. Gale & Polden, London. Price, 6d.

system for doing this is very desirable and the one described appears well adapted to the purpose.

A summary of the matter included under the head "Judging Distance" is as follows:

- (a) Train men to recognize a short unit of measure.
- (b) Explain causes of under and over estimation, also effect of light and background.
- (c) Demonstrate the appearance of fatigue men in different firing positions at distances from 100 to 600 yards.
- (d) Men to estimate themselves, giving reasons for each estimate.
- (e) Estimate from service positions, visual training and judging distance combined.
- (f) Time for calculation decreased. Rifles carried, estimates put on sight.
- (g) Judge on fatigue men, firing blank.
- (h) Judge on features of ground likely to contain an enemy.
- (i) Commence judging distance and observation marches.

Under (d) above five methods of aiding the estimate by reference to other known or easily recognized measurements are given. As an example, sighting through the bore of the rifle at a man standing.

Competitions in judging distance are a feature of the course at Hythe and the method of conducting them and keeping the records is described.

A "Ready Reckoner" table included in the book should prove very convenient in making up the records.

The book is decidedly worthy of the attention of our officers.

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**Hints on  
Etiquette and  
Dress.\***

The title is fully descriptive of the contents. The Mess Etiquette, much more rigid than with us, is perhaps the most interesting part of the text. Compliments, Official Correspondence and Dress constitute the remainder of the book. The book will furnish valuable hints

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\*"HINTS ON ETIQUETTE AND DRESS." By an Adjutant. Gale and Peden, London. Price, 6d., net.



for an officer who anticipates being brought into social relations with English regiments and may possibly save him some embarrassment.

G. E. S.

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**Military Law  
Made Easy.\***

The indefatigable publishers, Gale and Polden, have brought out the fourth edition of *Military Law Made Easy* by the no less indefatigable author, Lieutenant Colonel Banning. Colonel Banning is a Barrister-at-Law of the Middle Temple, and has been for ten years instructor in Military Law at the Royal Military College, Sandhurst. He has here presented a useful handbook and one of moment to military students and candidates for promotion.

The permitting of the use of books at examinations, in the English Army, does not detract from the importance of this work, for candidates must know their way through official books, and the author invariably gives his references. The issuing of orders necessarily requires the keeping of text and hand books up to date, and so we have this edition. This is something we must come to in our own service. Things move rapidly these days and it becomes almost impossible for an officer to keep up in every branch of the profession. Those well qualified by study in special subjects can do scarcely better work than compiling short useful handbooks upon our various subjects. Of course our *Manual for Court-martial* is so useful a book that we do not feel the need of others works in the subject of Military Law as some armies do, but a book of procedure, such as our manual essentially is, could well be supplemented by private works upon the subject that should be of use to the profession.

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\*"MILITARY LAW MADE EASY." By Lieutenant Colonel S. T. Banning, Late Royal Munster Fusileers. Gale and Polden, London. Price, 4s. 6d.

**Administration,  
Etc., Made  
Easy.\***

We have here the eighth edition of another one of the Made Easy book. As we have already reviewed this book (see July JOURNAL, 1905), we can do no better than to quote what we said of the previous edition.

"This book embraces in one small volume a vast store of information for the British army officer on the subjects named in the title. The text is compiled from a large number of reference books, with a view to assisting officers for promotion. A short list of questions is appended to each chapter, while an appendix contains a much longer list with answers. These questions are those given in previous examinations. The American officer who is interested in the subject of British administration, organization and equipment will find in this text a brief but clear statement of what has hitherto been regarded a complicated study. The chapters on Mobilization, Transport, Supplies and Ammunition Supply are especially interesting. A text, prepared on these lines, treating the subjects from an American point of view, and brought up-to-date, would be very valuable to officers of the United States Army.

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**How to Become  
a Drill  
Instructor.†**

This little book is decidedly novel and fully bears out the author's claim that it is not in any sense a compilation from military text books. It might almost be called a treatise on mental philosophy. In remarkably well-chosen language the author discusses the mental and moral attitude the young non-commissioned officer should hold toward his duties as instructor; points out the dangers of discursive and unsystematic study, and describes his method of taking notes in study, a method which undoubtedly is a

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\*"ADMINISTRATION, ORGANIZATION AND EQUIPMENT MADE EASY." By Lieutenant Colonel S. T. Banning, late Royal Munster Fusiliers. Gale and Polden, London. Price, 4s. 6d., net.

†"HOW TO BECOME A DRILL INSTRUCTOR." By Sergeant Major F. Ferguson, Seaforth Highlanders. Gale and Polden, London, No. 2 Amer Corner, Paternoster Row, E. C. Price, 1s. 6d., net.

good one, but hardly necessary in the study of the manuals used in our service, since these are all fully indexed.

Nearly half the sixty-two pages of the book is devoted to an analytical study of the art of memorizing. The principal of association of ideas, either by contrast or resemblance, is applied to various concrete examples taken from English service manuals, and it is convincingly shown (as various other systems of mnemonics have previously shown) that association of ideas is the greatest possible aid to memory.

Several pages on the art of compiling and delivering lectures, which it appears is sometimes a function of the non-commissioned officer in English organizations, closes the book.

The chapter on memory culture gives the book its chief value. The principal discussed is obvious and of long-standing recognition, yet no doubt many men of N. C. O. rank have never heard it formally stated or the value of its methodical application shown.

G. E. S.

**Fifteen  
Decisive  
Battles.\***

This book was received too late for an extended review in this number of the JOURNAL. As will be seen from the complete title, it is a new edition of the old

and familiar work of this same title to which has been added accounts of the battles of Quebec, Yorktown, Vicksburg, Gettysburg, Sedan, Manila Bay, Santiago and Tsu-Shima-The Sea of Japan. The book will be reviewed fully in the following number of the JOURNAL.

E. B. F.

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\*"THE FIFTEEN DECISIVE BATTLES OF THE WORLD FROM MARATHON TO WATERLOO." By Sir Edward Creasy, M. A. New edition to which are added Quebec, Yorktown, Vicksburg, Gettysburg, Sedan, Manila Bay, Santiago and Tsu-Shima-The Sea of Japan. Harper & Brothers, New York and London. 1908. Price, \$1.25.



## Editor's Table.

"All the pure and noble arts of peace are founded on war; no great art ever rose on earth but among a nation of soldiers. \* \* \* There is no great art possible to a nation but that which is based on battle. \* \* \* When I tell you that war is the foundation of all the arts, I mean also that it is the foundation of all the high virtues and faculties of men. It is very strange to me to discover this; and very dreadful—but I saw it to be quite an undeniable fact. The common notion that peace and the virtues of civil life flourished together, I found to be wholly untenable. Peace and the vices of CIVIL life only flourish together. We talk of peace and learning, of peace and plenty, and of peace and civilization; but I found that those were not the words which the Muse of History coupled together; that, on her lips, the words were peace and sensuality—peace and selfishness—peace and death. I found, in brief, that all great nations learned their truth of word, and strength of thought, in war; that they were nourished in war, and wasted by peace; taught by war, and deceived by peace; trained by war, and betrayed by peace; in a word, that they were born in war, and expired in peace."—*John Ruskin*.

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### CHIEF OF CAVALRY.

As stated in the October number of the JOURNAL, the Executive Council considered it wise to go on with the work of securing signatures to the petition for a Chief of Cavalry, notwithstanding the fact that a quasi chief had been selected and appointed. The controlling reason for this decision was the opinion entertained by the Council that it might thereby give the War Department powerful support in its effort to place the cavalry on a high plane of efficiency. The signed petitions up-to-date (December 11th) reveal the practical unanimity of opinion among cavalry officers concerning this important matter, and indicate clearly that the Council in thus acting did not misjudge the wishes of the Cavalry Association.

Since the last regular meeting of the Association in Jan-

uary, 1908, the Council has been guided in this matter by the instructions it received from the Association at that time. By the selection of a colonel of cavalry as an inspector, an element that did not exist at the time of the meeting referred to, was introduced into the situation, thus placing the Council in a quandry as to whether it should continue to carry out the instructions of the Association, or should defer further action until after the next regular meeting in January, 1909. As stated above the Council finally decided to proceed with the circulation of the petition.

After the publication of the October JOURNAL a number of cavalry officers suggested to the Council that the presentation of the petition at this time might interfere with the efforts that the War Department is making in this matter of a Chief of Cavalry. Thus the Council was again called upon to consider whether or not it was advisable to depart from the instructions it received from the Association. The Council takes it for granted that the purpose of the Association from the beginning of this movement has been to strengthen the hand of the War Department, consequently it believes that any action that may embarrass the War Department in its efforts to adjust the proposed office of Chief of Cavalry to our scheme of army administration will meet with the disapproval of the Association. The Council has therefore decided that further action regarding a Chief of Cavalry is now unnecessary and it trusts that its action will be approved by the Association at its next regular meeting in January, 1909.

The establishment by the War Department of an office wherein is to be placed an official with duties similar to those that the JOURNAL has advocated for a Chief of Cavalry must meet with the approbation of the cavalry service. The JOURNAL will be a firm supporter of the new official. If, after the experiment of a non-legislative detail of Chief or Inspector of Cavalry is given a thorough trial, it be found that this official cannot have the supervision and control deemed essential to such a position, we hope that steps will be taken to procure the enactment of a law authorizing such an official along with all the authority needed by so important a position.

## BOOK DEPARTMENT.

The Association has received the manuscript of a work entitled "Horses and Riding," by Captain Edward L. Anderson, the author of "Modern Horsemanship" and "Curb, Snaffle and Spur." This will be published by the Cavalry Association in the near future, and, possibly, it may first appear, serially, in the CAVALRY JOURNAL and afterwards in book form.

It will be illustrated with about forty half-tone plates from photographs, showing the various breeds of saddle horses, together with some of the thoroughbreds ridden and trained by the author. Many of these illustrations are unique and all are of value and interest.

As "Curb, Snaffle and Spur" is out of print, there is not now any good book on riding published in this country. It is believed that the publication of this work will be timely and that there will be a demand for it from not only our cavalry officers but from horsemen generally.

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Captain Spaulding's book, "Notes on Field Artillery" is having a good sale and the demand for it is increasing. The reviews and notices of this work, both at home and abroad, are very favorable and all state that it is, as the title states, for officers of all arms. Those officers who try, and all should, to keep up with what is going on in the other branches of the services, which is so essentially necessary for intelligent coöperation of all arms, will find in this little book all that any officer, from the commanding general down, should know as to the powers and functions of modern artillery, excepting, of course, the trained artilleryman, who should go deeper into the technicalities of the subject.

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Attention is called to the review of a new book, entitled "Topographical Surveying and Sketching," by Major Thomas Rees, Corps of Engineers, that appears in this number of the JOURNAL. This book has been adopted as a

text book at the army service schools at Fort Leavenworth and has also been adopted as the standard authority for the army. See G. O. No. 191, current series War Department.

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Flattering notices of Captain Sargent's "Campaign of Santiago de Cuba" still continue to be received, especially from abroad. A prominent general officer in our army writes of it as follows: "Your 'Campaign of Santiago' is the best book I have read on the subject, and I have read about all that has been written on this campaign. I wish every army officer would read it. It would interest the old ones and instruct the young. I hope it will have the success it deserves."

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#### THE ANNUAL MEETING OF THE ASSOCIATION.

The annual meeting of the Cavalry Association will be held in Grant Hall at Fort Leavenworth on Monday, January 18, 1909, at 8 P. M. The proxies already received are more than sufficient in number to constitute a quorum, although none have been received as yet from several cavalry garrisons in the United States. The representatives of the Association at these garrisons who have not sent in their proxies are requested to do so without delay.

A hasty glance at the proxies received from the regular members indicate that all of the proposed amendments to our constitution will be adopted almost unanimously, there being but a few scattering dissenting votes to certain of the propositions.

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#### ARMYTOWN.

An article which appeared in the October 3, 1908, number of *Collier's*, under the above title, by Major Charles McK. Saltzman, Signal Corps, U. S. A., has attracted much attention and has drawn forth several very favorable comments in the army papers and other periodicals.

It sets forth so well the army side of that much discussed



"Canteen" question that it fully deserves all the favorable notices that it has received.

The following quotations are from it:

"Our town, which we might call 'Armytown,' is a community such as is described above. Most of our people are healthy young soldiers far from home and who, contrary to the general prevailing opinion, work hard every day. The majority of our people are abstainers, but we are of the people and have our quota of drinkers always with us. These drinkers of ours have been a source of great anxiety not only to the officials of our town, but even to the National Government.

"Conditions in our town are different from those in other towns. Armytown has no saloons, stores, theaters, skating rinks, or other places of amusement such as are found in other towns. The Government found that almost every evening, when the duties of the day were completed, our young men with their red corpuscles and their blue uniforms hied themselves to the nearby village in search of amusement, hilarity and excitement. The Government also found that there existed among the people a social prejudice against the soldier man in his blue uniform. It found that, although society lauded him in story and song when war-clouds appeared on the national horizon, it did not want to meet him socially at parties, balls, receptions, etc., during the every-day life of peace times, and that it even excluded him from many places of public entertainment. In fact, the Government found that our young men, feeling this discrimination, were gravitating toward the village saloons and dives which welcomed them and gave them an exciting evening's entertainment, even though it sent them home to our town late at night much the worse for wear. The Government found that at many of the Armytowns in the country, all like ours, a large number of low saloons and dives were being built just outside the Armytown limits, for the amusement of our young men.

"Since many of our men persisted in visiting the neighboring grogshops with the most evil results to themselves, the Government finally permitted the officials of our town

to establish an ideal saloon in Armytown, with a view to remedying this wretched condition of affairs. To keep our men at home, it built a club-house with an amusement-room, a reading-room, a bowling alley, a gymnasium, a writing-room, and other adjuncts of a man's club. It called this club the "canteen." From this club-house it barred whisky and all other virile intoxicants, but in one room, for the use of those who insisted on drinking the vile liquors of the village grogshops, it authorized the sale of beer.

"Stringent rules were prescribed, regulating the conduct of this bar, and the rules were backed up by armed soldiers who could be called from the nearby guard-house on an instant's notice. The rules had the effect of Federal law, and the authority behind them was the strong arm of the United States. In this Armytown saloon there was no drunkenness or disorder. Our saloon was regulated—regulated by the strongest power in this land.

"Even the most rigid prohibitionists of our town were pleased, and said that the experiment was a great relief from the horrible conditions which formerly prevailed. The fringe of grogshops and dives just outside the limits of the Armytowns throughout the land, which had lured young men to their destruction for years, began to disappear. Their trade was lost, and the young men who had previously patronized them now spent their evenings in the canteen gymnasium and reading-room.

"But the rum-sellers and divekeepers of the neighboring village were not willing to be thus deprived of their revenues without a fight. This quiet, orderly canteen worried them, and they agitated the question as to whether it was right for the Government to permit the sale of beer on a Government reservation and thus tempt young men. 'No,' said the divekeepers, 'these canteens have a bad influence and should be closed.' So the grogshop men and the divekeepers joined hands and fought the canteen for several years with little success until they were suddenly, to their great wonderment and stupefaction, joined by an unexpected ally.

"The W. C. T. U., a noble organization of Christian women which has always endeavored to labor for the betterment of mankind, took up the crusade against the Armytown canteen. These combined influences abolished the canteen in our town.

"So we are back where we started in Armytown. Each evening hundreds of our young men leave Armytown and saunter over to the resorts which have reappeared just outside our town limits. The records of the Armytown police court tell the rest of the tale."

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### THREE MILLION YEARS OF THE HORSE.

In the *Baltimore Sun* of November 15, 1908, a writer states some "high browed scientist" has claimed that from recent discoveries, the horse has been on the earth for three million years or more. He says: "It is also asserted, claimed or averred that this collection of fossils in the American Museum of Natural History shows 'three million years of horse history.' How they figure it out is not explained. But the creator of the department or vertebral paleontology does tell the thrilling story of how a battery of paleontologists pursued the elusive bones through all the wild West, through the Bad Lands of Montana, Wyoming and the Dakotas and at last ran them down and captured them. The curator asserts with confidence and satisfaction that the investigators have proved that the horse is distinctly "America's contribution to the world's history."

Therefore, we know that before horse-racing was known in any other quarter of the world the American horse trotted a heat now and then on the Western plains. He must have run, cantered, capered, loped and paced even in the prehistoric ages, before man began to bet on him.

The superb animals which have recently been put through their paces at the New York Horse Show might go up and take a look at the bones of their ancestors. It might give them confidence in the future to realize that long before automobiles began to honk, before trains ran screaming

and smoking through city and country, the horse was doing a steady business over good section of the world. It might inspire them to believe that, in spite of multiplication of machines, there is a great future for the horse, as there has been a great past.

There will *never* be a "horseless age." The *man who loves* a horse cannot show the same *affection and esteem* for anything on *earth made of* steel and wood. The crowds that flock to see horses on the track and in the show ring are only a small fraction of the lovers of the horse. For, whether his lineage can be traced back three million years or three thousand, the horse from earliest history has been man's best friend; and it may be thousands of years more before man bars him from the pastures of the world.

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#### THE ARMY AND NAVY GAME.

The Philadelphia *Public Ledger* has the following to say editorially, regarding the great game of football which resulted in a victory for the army team this year:

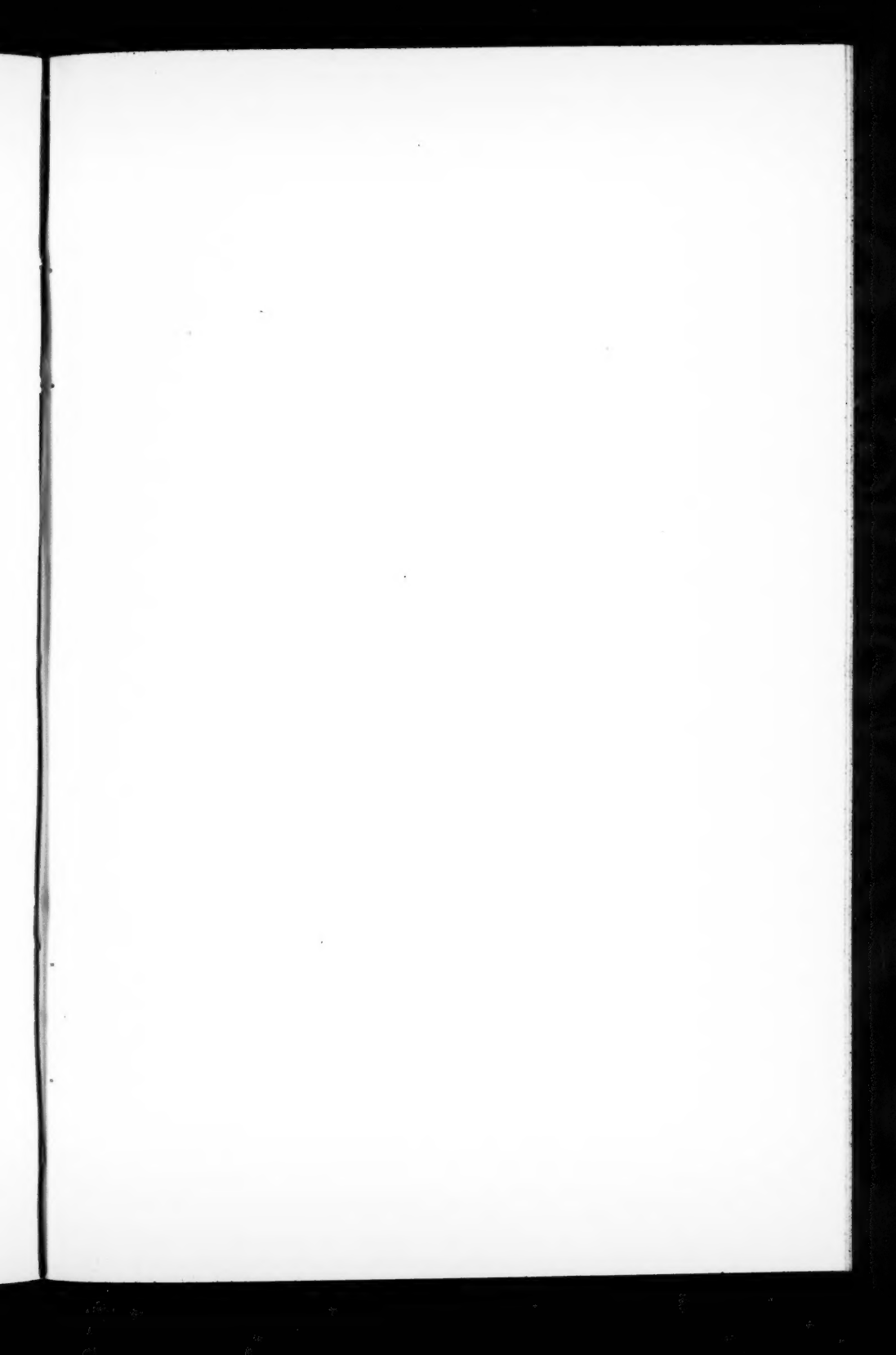
"The annual football game at Philadelphia betwixt Uncle Sam's proteges of the future's 'far-flung battle lines' and the future's serried squadrons on the sea is quickening to the dullest imagination. It means so much more than a team of eleven men from the military school competing with eleven men from the Naval Academy. When West Point plays Annapolis, it is the entire United States Army pitted against the entire American Navy. The army as a whole, the navy as a whole, exults in victory or is dejected in defeat. For a day the mills of government at Washington well-nigh cease to grind; grizzled veterans doff the mask of potentous official solemnity and "root" for one side or the other, as though the chalk lines were international boundaries in dispute. They like to believe that Wellington said Waterloo was won on the playing field at Eton, and in the mimic warfare of the well-fought field before them they behold the counterpart or the grim reality.

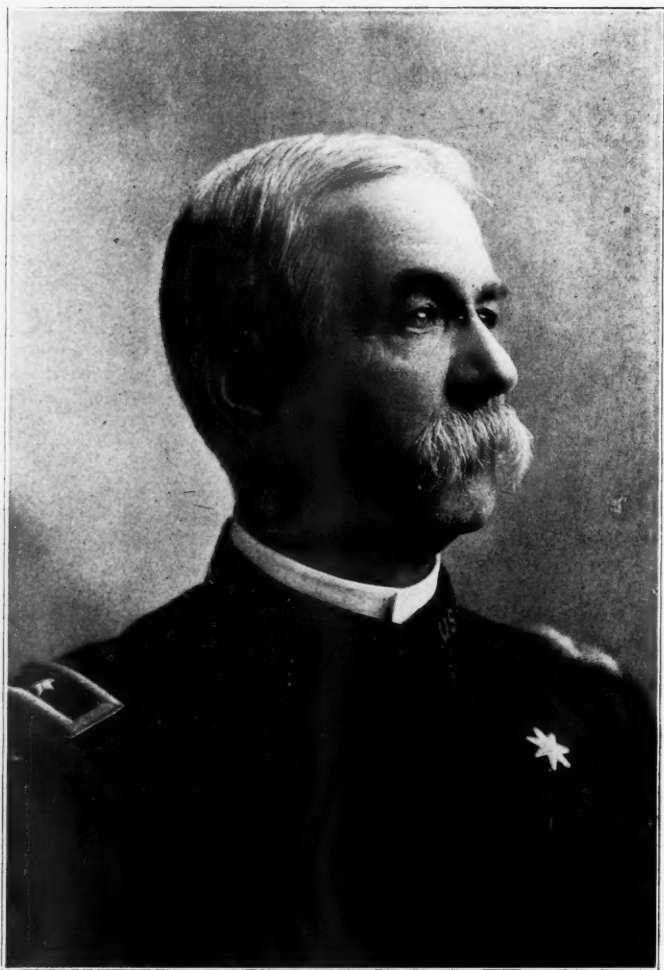
"Philadelphians are glad that Franklin Field has been chosen, as in the neutral zone, for the settlement of their amiable differences, by soldier and sailor. They are glad, not from sordid and selfish considerations, but because the money of the visitors is freely in evidence, and the tavern keeper and the florist, the railroad and the garage, are reaping a golden harvest. But they like to see upon our streets the stalwart and prepossessing specimens of young American manhood, who are fitting to become the country's defenders in after years. What a spectacle is that afforded by "the army and navy crowd!" The loveliest woman on God's footstool are those 'whose bright eyes rain influence' upon the twenty-two contestants, and among the onlookers as well. No doubt the play's the thing and the player all in all, and yet in one of these great football games the hypnosis of the crowd 'the multitudinous throb and resurgence and thrill,' the singing and the cheering, the music and the flowers and the beauty of the women—all these, whoever wins or loses, go very far to make the 'crowded hour of glorious life' in a great and memorable day.

"It may with reason and in all sincerity be urged by the opponents of the sport that football is a rough, if not a brutal game; that in the heat of the encounter Alphonse does not defer to Gaston as he should, and that it is unmannerly in one young man to throw another to the ground and sit upon him. Nevertheless, the game continues to find favor in the eyes of a few even of the high-minded and right-thinking men and women. They believe that the game inculcates self-control and fortitude. These things are as much a part of the training of a second lieutenant or a midshipman as logarithms or calculus, gunnery or navigation. In war time it is the warrior not the molly-coddle who is wanted. And until the day when the nations of the earth shall convert swords into ploughshares, spears into pruning hooks, it is just as well to remember what is, after all, the primary business of West Point and Annapolis.

"The final score of the game and the army's hard-earned victory by almost the closest possible margin show how evenly matched were the luck and pluck, the brain and

brawn, that entered into this contest of worthy foemen. The spirit of militant offense and dogged, stout-hearted resistance augurs well for the country if ever the times that try men's souls should recur, and the mettle of our warriors and seamen should be put to the test again, not upon the grid-iron in a game with a leather ball, but on the battlefield by land and sea."





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LATE COLONEL FIRST U. S. CAVALRY.  
LATE BRIGADIER GENERAL U. S. VOLUNTEERS.  
FIRST PRESIDENT OF THE U. S. CAVALRY ASSOCIATION.



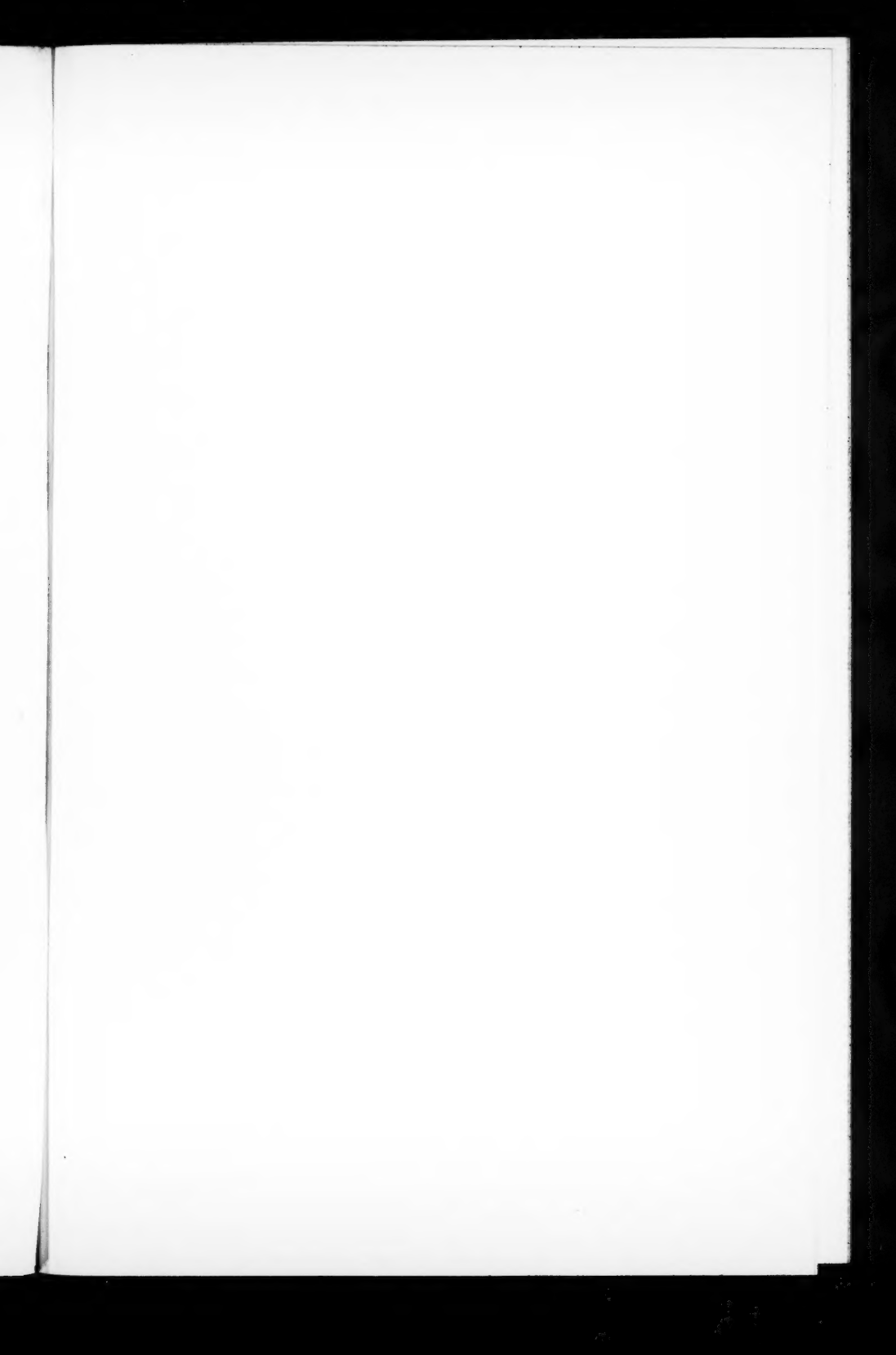






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LATE BRIGADIER GENERAL U. S. VOLUNTEERS,  
FIRST PRESIDENT OF THE U. S. CAVALRY ASSOCIATION.







**THOROUGHBRED.**  
(*From the Harzburg Breeding Farm.*)  
Photograph by MAX PASM, Harzburg.